GEOTECHNICAL AND ENVIRONMENTAL STUDY
SOUTH PHOENIX/LAVEEN DRAINAGE IMPROVEMENT PROJECT, FCD #94-14
MARICOPA COUNTY, ARIZONA

FOR

HDR ENGINEERING, INC.

TEC 95019RPT.01

DECEMBER 2, 1996

TERRANE ENGINEERING CORPORATION

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TERRANE ENGINEERING CORPORATION

TERRANE ENGINEERING CORPORATION
1920 East Third Street, #8
Tempe, Arizona 85281
602.894.1207 TEL • 602.894.2667 FAX

December 2, 1996

Mr. Steve Miller
HDR Engineering, Inc.
5353 North 16th Street, Suite 205
Phoenix, AZ 85016-3226

Re: Geotechnical and Environmental Study
South Phoenix/Laveen Drainage Improvement Project, FCD #94-14
Phoenix, Arizona
TEC 95019RPT.01

Dear Mr. Miller:

Terrane Engineering Corporation *(TEC)* is pleased to provide our report for the referenced project. Our services were performed in general accordance with *TEC* Proposal 94046PR.FCR, dated October 4, 1994.

The attached report summarizes project and site data, describes the services we performed, and presents information regarding geotechnical conditions, groundwater, and environmental concerns for the study area. The report appendix presents supporting information such as figures, groundwater data, and environmental database report.

We have enjoyed providing this service for you. If you have any questions concerning this report, or if I may be of additional service, please contact me.

Sincerely,

TERRANE ENGINEERING CORPORATION

Frank Costello

Registered Professional Engineer (Civil)
CERTIFICATE NO.
19397
FRANK
COSTELLO
Date Signed 12/2/96
ARIZONA, U.S.A.

Frank Costello, P.E.

Copies to: Addressee (6)

TABLE OF CONTENTS

1. INTRODUCTION 1

2. PROJECT DESCRIPTION 1

3. SCOPE OF SERVICES 2
   - 3.1 Research 2
   - 3.2 Engineering 2

4. SITE CHARACTERIZATION 2
   - 4.1 Topography 2
   - 4.2 Regional and Site Geology 3
   - 4.3 Groundwater 3
   - 4.4 Soil Conditions 4
     - 4.4.1 Agualt Series 5
     - 4.4.2 Antho Series 5
     - 4.4.3 Avondale Series 6
     - 4.4.4 Brios Series 6
     - 4.4.5 Carrizo Series 7
     - 4.4.6 Casa Grande Series 7
     - 4.4.7 Cashion Series 8
     - 4.4.8 Cherioni-Rock Outcrop Complex 8
     - 4.4.9 Coolidge Series 9
     - 4.4.10 Ebon Series 9
     - 4.4.11 Estrella Series 10
     - 4.4.12 Gadsden Series 10
     - 4.4.13 Gilman Series 10
     - 4.4.14 Gilman Variant 11
     - 4.4.15 Glenbar Series 11
     - 4.4.16 Gunsight Series 12
     - 4.4.17 Laveen Series 12
     - 4.4.18 Mohall Series 12
     - 4.4.19 Perryville Series 13
     - 4.4.20 Pinal Series 13
     - 4.4.21 Rillito Series 14
     - 4.4.22 Rock Outcrop 14
     - 4.4.23 Toltec Series 15
     - 4.4.24 Tremant Series 15
     - 4.4.25 Trix Series 16

4.4.26 Tucson Series 16
4.4.27 Valencia Series 16
4.4.28 Vint Series 17

5. ENVIRONMENTAL RECORDS 17

6. DISCUSSION 30

7. SUMMARY AND CONCLUSIONS 30

APPENDIX

Area Map A-1
Soil Series Map A-2
Groundwater Map A-3
Environmental Map A-4
ALT Database Report A-5

GEOTECHNICAL AND ENVIRONMENTAL STUDY
SOUTH PHOENIX/LAVEEN DRAINAGE
IMPROVEMENT PROJECT, FCD #94-14
MARICOPA COUNTY, ARIZONA

FOR
HDR ENGINEERING, INC.

***TEC* 95019RPT.01**
DECEMBER 2, 1996

1. INTRODUCTION

This report presents the results of our geotechnical and environmental study for the South Phoenix/Laveen Drainage Improvement Project, FCD #94-14 in Maricopa County, Arizona. Our services were performed in general accordance with *TEC* Proposal 94046PR.FCR, dated October 4, 1994. The study was performed by *TEC* to provide preliminary information regarding soil conditions, groundwater, and environmental concerns.

2. PROJECT DESCRIPTION

The project is an iterative evaluation of drainage improvement alternatives in southwest Phoenix, Arizona. The general boundaries of the drainage study area are: 43rd Avenue (west), Salt River (north), Central Avenue (east), and South Mountains (south). The boundary is outlined in orange on the Area Map in the Appendix. Hydraulic analysis indicates that a 3,000-foot-wide, flood channel will flow through the study area during a 100-year event. The channel will flow from east to west through the central portion of the study area, then northward to the Salt River. Alternative methods of drainage and flood control being considered are channelization, detention basins, and retention basins.

The geotechnical and environmental study area is limited to parts of the drainage study area where improvements may be planned and a mile-wide strip on the west side of the drainage study area. The geotechnical and environmental study area encompasses approximately 18 square miles, and its boundaries are: Elliot Road extended (south), 51st Avenue (west), and Broadway Avenue (north). The east boundary follows 19th Avenue to Southern Avenue, Southern Avenue to 7th Avenue, 7th Avenue to Dobbins Road, Dobbins Road to 19th Avenue, and 19th Avenue to Elliot Road extended. The boundary is outlined in black on the Area Map.

3. SCOPE OF SERVICES

Two categories of services were required for this geotechnical and environmental study. They included research and engineering, which are described in the following paragraphs. These services were performed by *TEC* and its subcontractors in general accordance with *TEC* Proposal 94046PR.FC and current standards of practice for engineering.

3.1 Research

The research activities were performed by *TEC* and All Lands Title (ALT), an environmental research firm. Site reconnaissance was not a part of this phase of the geotechnical and environmental study. Information was gathered from several sources, which included:

- Arizona Bureau of Geology and Mineral Technology,
- Arizona Department of Water Resources (ADWR),
- Arizona Department of Environmental Quality (ADEQ),
- U.S. Environmental Protection Agency (EPA), and
- U.S. Geological Survey (USGS).

3.2 Engineering

Engineering services included compiling research data, drafting written and graphical summaries of geotechnical and environmental data, and preparing a report of the study's results regarding soil conditions and characteristics, groundwater, and environmental concerns.

4. SITE CHARACTERIZATION

Information regarding topography, geology, groundwater, and surface and near-surface soil and rock conditions is presented in this section. The information presented herein is based on our research activities only; reconnaissance was not part of this phase.

4.1 Topography

Currently, the study area consists of mixed land uses including native desert, agricultural, commercial, industrial, and residential properties. Agricultural usage appears to be predominant, and residential usage appears to be more concentrated in the eastern and northern parts of the study area.

Based on review of the Laveen, Fowler, Phoenix, and Lone Butte Quadrangles published by the USGS, the area generally drains from South Mountain northwestward to the Salt River. Elevations range from 1,200 feet at the southeastern corner of the site to 1,020 feet at the

northwestern corner of the site. Surface gradients are northwestward and on the order of 130 feet per mile in the eastern part of the study area and 60 feet per mile in the western part of the study area.

4.2 Regional and Site Geology

Southern and western Arizona are in the Basin and Range Province. This physiographic province is characterized by northwest-southeast trending, elongate, block-fault mountain ranges (horsts) separated by deep basins (grabens). During the latter part of the Cenozoic Era, the Earth's crust was pulling apart in this province, the resulting tension faulting caused the basins to sink. In the remainder of the Tertiary Period and during the Quaternary Period, the ranges have been eroding and filling the valleys with alluvium (clays, silts, sands, and gravels). Some of the basins have thick sequences of evaporite deposits. Also, layers of lava or volcanic ash related to volcanism in Arizona exist in some of the basins.

The project site is in one of the valleys of the Basin and Range Province north of the South Mountains, a Cordilleran metamorphic core complex with an antiform structure. The mountains are an isolated, east-northeast range surrounded by late Tertiary and Quaternary soil deposits. Most of the study area is covered with late Tertiary and Quaternary soil deposits (pediment, old alluvial fan, and new alluvial fan), which are described to a depth of about five feet in Soil Conditions. Bedrock dips moderately to the north and underlies the surficial soil deposits.

4.3 Groundwater

Groundwater data was obtained from *Hydrologic Map Series Report Number 27* published by ADWR in 1995 with data from 1991 and 1992, and from ADWR's basic data files. The 1995 report indicates groundwater flow is northwestward with a gradient of 10 feet per mile. Groundwater elevations were on the order of 1,030 feet in the southeast corner of the study area and on the order of 970 feet in the northwest corner of the study area. The depth to groundwater varied from 29 to 127 feet, but was generally between 40 and 60 feet.

Information from ADWR's basic data files is compiled on the Groundwater Map in the Appendix. ADWR's files had information on 31 wells in the study area. The map shows the location of each well and provides information regarding ADWR number, surface elevation, and highest, lowest and latest groundwater elevations. The historical readings show there was a trend of higher groundwater elevations until the 1980s and a trend of lower groundwater elevations into the 1990s.

From readings during the 1990s, groundwater elevations ranged from 967 to 1,071 feet. These extremes were near 43rd Avenue and Elliot Road. Readings in the remainder of the study area were similar to those in the 1995 ADWR report. Generally, groundwater elevations ranged from

1,030 feet in the east to 1,000 feet in the west, and the gradient was northwestward. Also, the depth to groundwater was between 30 and 60 feet in most of the study area, but groundwater was encountered at depths less than 20 feet near the mountains and the Western Canal.

4.4 Soil Conditions

Soil Survey of Maricopa County, Arizona, Central Part by the U.S. Soil Conservation Service (SCS) provides information about the extent and characteristics of soils to a depth of five feet. Based on this publication, there are three categories of soil associations in the study area. They include soils formed in recent alluvium, soils formed in old alluvium, and soils of the mountains and buttes.

For the first category, Gilman-Estrella-Avondale, Antho-Valencia, and Carrizo-Brios soil associations were mapped in the study area; for the second category, Mohall-Laveen, Laveen-Coolidge, and Ebon-Pinamt-Tremant soil associations were mapped in the study area, and for the third category, the Cherioni-Rock outcrop association was mapped in the study area. Brief descriptions of and soil series present in each association are presented below:

Gilman-Estrella-Avondale Association: Nearly level loams and clay loams on valley plains and low stream terraces that include Gilman, Estrella, Avondale, Glenbar, Antho, Avonda, Agualt, Gadsden, and Cashion soils.

Antho-Valencia Association: Nearly level sandy loams on recent alluvial fans and valley plains that include Antho, Valencia, Gilman, Coolidge, Agualt, Maripo, Vint, Estrella, Carrizo, and Tremant soils.

Carrizo-Brios Association: Nearly level to gently sloping gravelly sandy loams in stream channels and on low stream terraces that include Carrizo, Brios, Vint, Torripsamment, Torrifluvent, Cashion, Gadsen, Maripo, and Antho soils.

Mohall-Laveen Association: Nearly level loams and clay loams on old alluvial fans and valley plains that include Mohall, Laveen, Tremant, Estrella, Vecont, Coolidge, and Valencia soils.

Laveen-Coolidge Association: Nearly level sandy loams, loams, and clay loams on old alluvial fans and valley plains that include Laveen, Coolidge, Mohall, Perryville, Tremant, Antho, Maripo, Rillito, and Gilman soils.

Ebon-Pinamt-Tremant Association: Nearly level to gently sloping gravelly loams, very cobbly loams, and gravelly clay loams on old alluvial fans at the base of mountains that include Ebon, Pinamt, Tremant, Carrizo, Gunsight, Rillito, Cherioni, and Antho soils.

Cherioni-Rock Outcrop Association: Gently sloping to very steep very gravelly loams and rock outcrop on mountains, buttes, and low hills that include Cherioni, Gunsight, Pinal, Gachado, and several other shallow soils and rock outcrops.

Fifty-four soils from 28 soil series were mapped by the SCS in the study area. The extent of each soil series is illustrated in the Soil Series Map in the Appendix. Soil series formed in recent alluvium include Agualt, Antho, Avondale, Brios, Carrizo, Cashion, Gadsden, Gilman, Gilman Variant, Glenbar, and Vint. Soil series formed in old alluvium include Casa Grande, Coolidge, Ebon, Estrella, Gunsight, Laveen, Mohall, Perryville, Pinal, Rillito, Toltec, Tremant, and Tucson. The Trix and Valencia series were formed in shallow new alluvium over old alluvium. Basic descriptions and typical engineering and index properties of each soil series are presented in the following subsections. The soil types of each series mapped in the study area are listed in parentheses.

- **4.4.1 Agualt Series (Aa):** "The Agualt series consists of deep, well-drained soils. These soils formed in recent alluvium that was deposited on flood plains, low terraces, and alluvial fans. The alluvium was derived from a wide mixture of rock, including granite, granite-gneiss, andesite, and basalt... In a representative profile, the soil is brown loam to a depth of about 27 inches and pale-brown sand to a depth of 60 inches. The soil is moderately alkaline throughout and in most places is calcareous throughout. Permeability is moderate in the loamy upper part of the soil and very rapid in the sandy lower part. Runoff is slow, and the hazard of erosion is slight."

  Typically, Agualt soils are non-plastic to low plasticity, sandy silt (ML) from the surface to a depth of 27 inches and non-plastic, poorly graded sand (SP) to a depth of 60 inches. Permeability ranges from 0.6 to 2.0 inches per hour for the surface layer and is greater than 20 inches per hour for the underlying soil; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 2 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low for concrete. These soils have medium shear strength and high compacted permeability.

- **4.4.2 Antho Series (AbA, AdA, AdB, Ae, AfB, AkB):** "The Antho series consists of deep, well-drained soils. These soils formed in recent alluvium deposited on alluvial fans and stream terraces. The alluvium was derived from a wide variety of rock, but was dominantly from granite... In a representative profile, the soil is light yellowish-brown and light-brown sandy loam to a depth 47 inches and reddish-brown light sandy clay loam to a depth of 60 inches. The soil is slightly to strongly calcareous and moderately alkaline throughout. In places, it is gravelly throughout. Permeability is moderately rapid. Runoff is slow to medium, and the erosion hazard is slight to moderate."

Typically, Antho soils are non-plastic, silty sand with gravel (SM) from the surface to a depth of 60 inches. Permeability ranges from 2.0 to 6.0 inches per hour; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 2 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low for concrete. These soils have medium shear strength, low to medium compacted permeability, and are susceptible to piping.

4.4.3 Avondale Series (Ao, Ap): "The Avondale series consists of deep, well-drained soils on stream terraces and alluvial plains. These soils formed in recent alluvium derived from basic and acid igneous rocks, quartzite, schist, and limestone... In a representative profile, the surface layer is brown clay loam about 12 inches thick. The underlying material is pale brown to a depth of 60 inches. The soil is moderately alkaline and strongly effervescent throughout. In a few areas it is saline and very strongly alkaline. Permeability is moderate to moderately slow. Runoff is slow, and the erosion hazard is slight."

Typically, Avondale soils are medium plasticity, lean clay (CL) from the surface to a depth of 12 inches and non-plastic to low plasticity, silt (ML) to a depth of 60 inches. Permeability ranges from 0.2 to 0.6 inches per hour for the surface layer and 0.6 to 2.0 inches per hour for the underlying layer; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 40 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low to high for concrete. Limitations with regard to shallow excavations are slight and suitability as a source for road fill is fair. These soils have low to medium shear strength, medium compacted permeability, and are susceptible to piping.

4.4.4 Brios Series (Br, Bs): "The Brios series consists of deep, somewhat excessively drained soils. These soils formed in recent alluvium deposited on flood plains, low terraces, and alluvial fans. The alluvium was derived from rhyolite, andesite, quartzite, and limestone... In a representative profile, the surface layer is brown sandy loam about 14 inches thick. The underlying material to a depth of 60 inches is brown coarse sand that is stratified below a depth of 22 inches. The soil is moderately alkaline throughout. The surface layer is strongly effervescent, and the underlying material is slightly effervescent. Permeability is rapid. Runoff is slow, and the erosion hazard is slight."

Typically, Brios soils are non-plastic, silty sand (SM) from the surface to a depth of 14 inches and non-plastic, poorly graded sand with gravel (SP) to a depth of 60 inches. Permeability ranges from 2.0 to 6.0 inches per hour for the surface layer and 6.0 to 20.0 inches per hour for the underlying layer; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 2 millimhos per centimeter. Risk of corrosion is moderate for uncoated steel

and low to moderate for concrete. These soils have medium shear strength, low to medium compacted permeability, and are susceptible to piping.

- **4.4.5 Carrizo Series (Cb, CeD, CF):** "The Carrizo series consists of deep, excessively drained soils. These soils formed in recent alluvium deposited on flood plains along the major streams and along stream channels in alluvial fans. The alluvium was derived from a wide mixture of rock, including granite, granite-gneiss, andesite, and basalt... In a representative profile, the surface layer is yellowish-brown gravelly sandy loam about 5 inches thick. The underlying material is pale-brown very gravelly loamy coarse sand and very gravelly coarse sand to a depth of 60 inches. The profile is moderately alkaline throughout and is weakly to moderately calcareous. Permeability is rapid. Runoff is slow, and erosion hazard is slight."

  Typically, Carrizo soils are non-plastic, silty sands with gravel (SM) from the surface to a depth of 5 inches and non-plastic, well-graded sands and gravels with silt (SW-SM and GW-GM) to a depth of 60 inches. Permeability ranges from 2.0 to 6.0 inches per hour for the surface layer to over 20.0 inches per hour for the underlying soil; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 2 millimhos per centimeter. Risk of corrosion is low for uncoated steel and concrete. These soils have high shear strength and high compacted permeability.

- **4.4.6 Casa Grande Series (Cm):** "The Casa Grande series consists of deep, well-drained, strongly alkaline soils on alluvial plains bordering drainage ways and on the lower part of broad alluvial fans. These soils formed in valley-fill alluvium derived from mixed material... In a representative profile, the surface layer is reddish-yellow sandy loam about 1 inch thick. The subsoil is about 22 inches thick. It is dark reddish-yellow, and strong-brown clay loam and loam. The underlying material is yellowish-red and brown loam and sandy loam to a depth of 60 inches. The subsoils and underlying material contain filaments and soft masses of lime and are very strongly alkaline. In places, the surface layer is loam. Permeability is slow. Runoff is slow to very slow, and the hazard of erosion is slight."

  Typically, Casa Grande soils are medium plasticity, lean clay with sand (CL) from the surface to a depth of 23 inches and low plasticity, sandy silt (ML) to a depth of 60 inches. Permeability ranges from 0.06 to 0.2 inches per hour for the surface layer and 0.2 to 0.6 inches per hour for the underlying soil; pH ranges from 8.5 to 9.6, and salinity ranges from 4 to 15 millimhos per centimeter. Risk of corrosion is high for uncoated steel and concrete. These soils have low shear strength, low compacted permeability, and are susceptible to piping.

4.4.7 Cashion Series (Cn): "The Cashion series consists of deep, well-drained soils. These soils formed in recent alluvium deposited on flood plains and low terraces along the Gila and Salt Rivers. The alluvium was derived from a wide mixture of rock, including granite, granite-gneiss, andesite, basal, and limestone... In a representative profile, the surface layer is dark grayish-brown clay about 27 inches thick. The underlying material is pale-brown very fine sandy loam and light yellowish-brown silt loam to a depth of 60 inches. The soil is moderately alkaline to strongly alkaline, is slightly saline to strongly saline, and is generally calcareous throughout. Permeability is slow. Runoff is slow, and the erosion hazard is slight."

Typically, Cashion soils are high plasticity, lean clay (CL) and fat clay (CH) from the surface to a depth of 27 inches and non-plastic to low plasticity, sandy silt (ML) to a depth of 60 inches. Permeability ranges from 0.06 to 0.2 inches per hour for the surface layer and 0.6 to 2.0 inches per hour for the underlying soil; pH ranges from 7.9 to 8.9, and salinity ranges from 4 to 15 millimhos per centimeter. The risk of corrosion is high for uncoated steel and low to moderate for concrete. These soils have medium shear strength, low compacted permeability, and are susceptible to piping.

4.4.8 Cherioni-Rock Outcrop Complex (CO): "This mapping unit is on low hills and the lower slopes of mountains. It is dissected by low stream channels that have cut 3 to 20 feet below the surface. These channels are 50 to 200 feet apart. Gravel, cobbles, and stones cover 50 to 90 percent of the surface... Slopes are complex and range from 3 to 25 percent... This mapping unit is about 50 percent Cherioni very gravelly loam that has slopes of 3 to 25 percent and about 20 percent Rock outcrop. The Cherioni soils are on the lower slopes of mountains and low hills, and Rock outcrop is on the upper slopes."

"The Cherioni series consists of well-drained soils that have a hardpan, and are only 6 to 20 inches deep over basalt, andesite, granite, or granite-gneiss bedrock. These soils formed on low hills and the lower slopes of mountains... In a representative profile, the surface layer is light yellowish-brown very gravelly loam about 1 inch thick. The underlying material is light yellowish-brown and very pale brown very gravelly loam about 5 inches thick. It rests on a white, silica-lime cemented hardpan about 6 inches thick. The pan cannot be broken by hand. Fractured andesite bedrock is just below the pan. The soil is moderately alkaline. Permeability is moderate above the hardpan. Runoff is medium, and the erosion hazard is slight to moderate."

Typically, Cherioni soils are non-plastic to low plasticity, silty gravel with sand (GM) from the surface to a depth of 6 inches and silica-lime cemented hardpan bedrock to a depth of 12 inches. Permeability ranges from 0.6 to 2.0 inches per hour; pH ranges from 7.9

to 8.4, and salinity ranges from 1 to 4 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low for concrete.

4.4.9 Coolidge Series (Cp, CrB): "The Coolidge series consists of deep, well-drained soils. These soils formed in alluvium deposited on old alluvial fans and valley plains. The alluvium was derived from granite, granite-gneiss, schist, limestone, andesite, rhyolite, tuff, and basalt... In a representative profile, the soil is light yellowish-brown sandy loam to a depth of about 24 inches and pale-brown sandy loam to a depth of 63 inches. The lower part contains filaments and nodules of lime. The soil is moderately alkaline throughout and is strongly to violently effervescent. Permeability is moderately rapid. Runoff is medium to slow, and the erosion hazard is slight to moderate."

Typically, Coolidge soils are low plasticity, silty sand (SM) from the surface to a depth of 24 inches and medium plasticity, clayey sand (SC) to a depth of 60 inches. Permeability ranges from 2.0 to 6.0 inches per hour; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 4 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low for concrete. These soils have medium shear strength, medium compacted permeability, and are susceptible to piping.

4.4.10 Ebon Series (EbD): "The Ebon series consists of deep, well-drained soils. Theses soils formed on low alluvial fans that radiate out from the base of the White Tank, Salt River, and Estrella Mountains. The underlying material is very gravelly alluvium derived from granite and granite-gneiss... In a representative profile, the surface layer is brown gravelly loam about 2 inches thick. The subsoil extends to a depth of 60 inches. The upper 11 inches is reddish-brown very cobbly clay loam, the next 25 inches is yellowish-red and reddish-brown very cobbly clay, and the lower 22 inches is light reddish-brown very cobbly sandy clay loam. The lower part contains a few filaments and soft spots of lime. The soil is moderately alkaline throughout. It is non-effervescent in the upper 23 inches. Permeability is slow. Runoff is medium, and erosion hazard is slight to moderate.

Typically, Ebon soils are high plasticity, clayey gravel with cobbles (GC) from the surface to a depth of 38 inches and medium plasticity, clayey gravel with cobbles (GC) to a depth of 60 inches. Permeability ranges from 0.06 to 0.2 inches per hour for the surface soil and from 0.2 to 0.6 inches per hour for the underlying soil; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 2 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low for concrete. These soils have medium shear strength and low compacted permeability.

4.4.11 Estrella Series (Es): "The Estrella series consists of deep, well-drained soils on broad alluvial fans and low terraces. These soils formed in medium-textured recent alluvium underlain by older alluvium from a wide mixture of rocks, including acid and basic igneous and some material from shale and limestone... In a representative profile, the soil is brown and light-brown loam to a depth of about 24 inches. Below this, to a depth of 48 inches, is an older, buried soil that is brown and reddish-yellow clay loam. The underlying material is mottled light-brown gravelly clay loam to a depth of 60 inches. The lower part of the older soils and the underlying material contain a large concentration of lime and a few pebbles. The soil is generally moderately alkaline throughout, but in some areas the lower part is strongly alkaline to very strongly alkaline. Permeability is moderately slow. Runoff is slow, and the erosion hazard is slight."

Typically, Estrella soils are non-plastic, sandy silt (ML) from the surface to a depth of 24 inches and sandy lean clay (CL) to a depth of 60 inches. Permeability ranges from 0.6 to 2.0 inches per hour for the surface soil and from 0.2 to 0.6 inches per hour for the underlying soil; pH ranges from 7.9 to 8.5, and salinity ranges from 1 to 4 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low for concrete. These soils have low shear strength, medium compacted permeability, and are susceptible to piping.

4.4.12 Gadsden Series (Gb, Gc): "The Gadsden series consists of deep, well-drained soils. These soils formed in recent alluvium derived from a wide mixture of rocks that were deposited on flood plains and low terraces along the Gila and Salt Rivers... In a representative profile, the soil is brown clay to a depth of about 43 inches and brown clay loam to a depth of 60 inches. The soil is moderately alkaline throughout. It is strongly effervescent to a depth of 43 inches. In a few areas, the surface layer is clay loam. In some areas, the soil contains excessive amount of saline and alkali salts. Permeability is slow. Runoff is slow, and the erosion hazard is none to slight."

Typically, Gadsden soils are high plasticity, fat clay with sand (CH) from the surface to a depth of 60 inches. Permeability ranges from 0.06 to 0.2 inches per hour; pH ranges from 7.9 to 8.4, and salinity ranges from 2 to 4 millimhos per centimeter. Risk of corrosion is high for uncoated steel and moderate for concrete. These soils have low shear strength and low compacted permeability.

4.4.13 Gilman Series (Ge, Gf, GgA, GgB, Gh): "The Gilman series consists of deep, well-drained soils on valley plains and low stream terraces. These soils formed in recent alluvium derived from a wide mixture of rocks, including andesite, basalt, schist, rhyolite, and granite-gneiss... In a representative profile, the surface layer is yellowish-brown loam about 5 inches thick. The underlying material is light yellowish-brown loam and

very fine sandy loam to a depth of 64 inches. The soil is moderately alkaline throughout and is weakly effervescent to strongly effervescent. Permeability is moderate. Runoff is slow, and the erosion hazard is slight to moderate."

Typically, Gilman soils are non-plastic, sandy silt (ML) from the surface to a depth of 60 inches. Permeability ranges from 0.6 to 2.0 inches per hour; pH ranges from 7.9 to 9.6, and salinity ranges from 1 to 40 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low to high for concrete. These soils have low shear strength, medium compacted permeability, and are susceptible to piping

4.4.14 Gilman Variant (Gp): The Gilman variant consists of deep, well-drained soils underlain by clayey sediment at a depth of 20 to 40 inches. These soils formed in recent alluvium deposited on stream terraces and flood plains. The alluvium was derived from a wide mixture of rock, including andesite, rhyolite, schist, gneiss, basalt, and some shale... In a representative profile, the surface layer is grayish-brown loam about 3 inches thick. The underlying material is light brownish-gray very fine sandy loam to a depth of 28 inches and pinkish-gray silty clay to a depth of 60 inches. The soil is moderately saline, strongly effervescent, and moderately alkaline to strongly alkaline. Permeability is moderate in the loamy upper part and slow in the lower part. Runoff is slow, and the erosion hazard is slight."

Typically, Gilman variant soils are non-plastic, sandy silt (ML) from the surface to a depth of 28 inches and high plasticity, fat clay with sand (CH) to a depth of 60 inches. Permeability ranges from 0.6 to 2.0 inches per hour for the surface layer and 0.2 to 0.6 inches per hour for the underlying soil; pH ranges from 7.9 to 8.4, and salinity ranges from 9 to 15 millimhos per centimeter. Risk of corrosion is high for uncoated steel and concrete. These soils have low shear strength, low compacted permeability, and are susceptible to piping.

4.4.15 Glenbar Series (Gr, Gs, Gt): "The Glenbar series consists of deep, well-drained soils. These soils formed in alluvium derived from a wide variety of rock that was deposited on valley plains and low stream terraces... In a representative profile, the surface layer is brown clay loam about 15 inches thick. The underlying material is light-brown and pale-brown clay loam and silty clay loam to a depth of 60 inches. The soil is moderately alkaline and is strongly effervescent throughout. Permeability is moderately slow. Runoff is slow, and the erosion hazard is slight."

Typically, Glenbar soils are high plasticity, sandy lean clay (CL) from the surface to a depth of 60 inches. Permeability ranges from 0.2 to 0.6 inches per hour; pH ranges from

7.9 to 8.4, and the salinity ranges from 0 to 4 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low to moderate for concrete. These soils have low shear strength, medium compacted permeability, and are susceptible to piping.

- **4.4.16 Gunsight Series (GxA, GxB):** "The Gunsight series consists of deep, well-drained soils. These soils formed in mixed alluvium on old alluvial fans... In a representative profile, the surface layer is very pale brown and yellowish-brown gravelly loam about 1 inch thick. Below this is about 2 inches of light-brown loam, 4 inches of light-brown gravelly fine sandy loam, 39 inches of light-brown very gravelly loam, and 14 inches of yellowish-red and reddish-brown very gravelly sandy clay loam. The underlying material contains many soft lime masses and semi-rounded lime concretions and, in places, is weakly cemented. The soil is moderately alkaline. Permeability is moderate. Runoff is slow to medium. and the erosion hazard is slight to moderate."

  Typically, Gunsight soil is medium plasticity, clayey gravel with sand (GC) from the surface to a depth of 60 inches. Permeability ranges from 0.6 to 2.0 inches per hour; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 4 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low for concrete. These soils have medium shear strength and low compacted permeability.

- **4.4.17 Laveen Series (Lb, LcA, Le):** "The Laveen series consists of deep, well-drained soils that have a large concentration of lime in the lower part. These soils formed in alluvium on old alluvial fans and old valley plains. The alluvium was derived from granite, granite-gneiss, schist, andesite, basalt, and limestone... In a representative profile, the surface layer is pale-brown and light-brown loam about 15 inches thick. The underlying material to a depth of 72 inches is pink loam that contains visible accumulations of lime below. Permeability is moderate. Runoff is slow to medium, and the erosion hazard is slight to moderate."

  Typically, Laveen soils are non-plastic, sandy silt (ML) and medium plasticity, sandy lean clay (CL) from the surface to a depth of 60 inches. Permeability ranges from 0.6 to 2.0 inches per hour; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 4 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low to moderate for concrete. These soils have low shear strength and are susceptible to piping.

- **4.4.18 Mohall Series (Mo, Mp, Mr):** "The Mohall series consists of deep, well-drained soils that have visible amounts of lime at a moderate depth. These soils formed on old alluvial fans and valley plains. The alluvium was derived from granite, rhyolite, schist, and some material from neutral and basic igneous rocks and limestone... In a

representative profile, the surface layer is brown clay loam about 12 inches thick. The subsoil is yellowish-red and reddish-brown clay loam to a depth of 35 inches and light-brown loam to a depth of 42 inches. The underlying material is light-brown very fine sandy loam to a depth of 60 inches. Permeability is moderately slow. Runoff is medium, and the erosion hazard is slight."

Typically, Mohall soils are high plasticity, sandy lean clay (CL) from the surface to a depth of 35 inches and non-plastic, sandy silt (ML) to a depth of 60 inches. Permeability ranges from 0.2 to 0.6 inches per hour in the surface layer and 0.6 to 2.0 in the underlying soil; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 2 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low for concrete. These soils have low shear strength, medium compacted permeability, and are susceptible to piping.

4.4.19 Perryville Series (PeA, PeB): "The Perryville series consists of deep, well-drained soils that have large amounts of lime at or near the surface. These soils formed on old alluvial fans and stream terraces. The alluvium was derived from basalt, limestone, andesite, rhyolite, and rhyolite tuff and some granite and quartzite... In a representative profile, the surface layer is very pale brown gravelly loam about 8 inches thick. The underlying material is very pale brown gravelly loam and sandy loam to a depth of 65 inches and very pale brown very gravelly loamy sand to a depth of 72 inches. The soil is extremely calcareous and is moderately alkaline. The pebbles are lime nodules. Permeability is moderate. Runoff is slow to medium, and the erosion hazard is slight to moderate depending upon slope."

Typically, Perryville soils are low plasticity, silty clayey sand (SC-SM) from the surface to a depth of 38 inches and non-plastic to low plasticity, silty sand (SM) to a depth of 60 inches. Permeability ranges from 0.6 to 2.0 for the surface layer and 2.0 to 6.0 inches per hour for the underlying soil; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 2 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low for concrete. These soils have medium shear strength and medium compacted permeability.

4.4.20 Pinal Series (PsA): "The Pinal series consists of shallow, well-drained soils that are less than 20 inches deep over a silica-lime cemented hardpan. These soils formed in old, gravelly or cobbly valley-fill material derived from mixed rocks on old alluvial fans and stream terraces. The rocks are chiefly granite, andesite, basalt, limestone, and tuff... In a representative profile, the surface layer is light yellowish-brown loam about 8 inches thick. The underlying material is light yellowish-brown cobbly loam to a depth of 12 inches. It is underlain by a white, indurated, silica-lime cemented hardpan. The soil is

strongly alkaline and calcareous throughout. Permeability is moderate in the upper part, but the pan is nearly impermeable. Runoff is medium, and the erosion hazard is slight to moderate."

Typically, Pinal soils are non-plastic to low plasticity, sandy silt (ML) and silty sand (SM) from the surface to a depth of 12 inches. Permeability ranges from 0.6 to 2.0 inches per hour; pH ranges from 7.9 to 8.4, and salinity ranges from 2 to 4 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low for concrete. Generally, hardpan is less than 20 inches deep.

- **4.4.21 Rillito Series (RbA):** "The Rillito series consists of deep, well-drained soils that are high in lime content. These soils formed on old alluvial fans and stream terraces in alluvium derived from a wide variety of rock, including andesite, basalt, granite-gneiss, schist, and limestone... In a representative profile, the surface layer is very pale brown loam about 2 inches thick. The underlying material is 8 inches of light yellowish-brown fine sandy loam, 9 inches of light-brown gravelly loam, and 56 inches of pink, pinkish-white, very pale brown, and light yellowish-brown gravelly loam and gravelly sandy loam. The underlying material contains soft masses, filaments, and concretions of lime. The soil is moderately alkaline throughout. Permeability is moderate. Runoff is slow to medium, and the erosion hazard is slight to moderate depending on slope."

Typically, Rillito soils are non-plastic to medium plasticity, silty sand (SM) and clayey sand (SC) from the surface to a depth of 60 inches. Permeability ranges from 0.6 to 2.0 inches per hour; pH ranges from 7.9 to 8.4, and salinity ranges from 0 to 4 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low for concrete. These soils have medium shear strength and medium compacted permeability.

- **4.4.22 Rock Outcrop (RS):** "Rock outcrop is exposed bedrock, mainly granite-gneiss, schist, welded tuff, and basalt. It occurs in intricate patterns and is mapped with shallow and very shallow soils in steep mountainous areas and on low hills... This mapping unit is on mountainsides and some low hills of the area. It occurs in several county and city parks. Slopes range from 5 to 90 percent. Areas are large and irregular in shape. This mapping unit is mainly about 65 percent Rock outcrop and about 20 percent Cherioni soils, but in some areas is less than 50 percent Rock outcrop. The Cherioni soils have profiles similar to the one described as representative of the series, but in some areas are very cobbly or stony."

The SCS does not provide estimates or interpretations of engineering properties for Rock outcrop because the mapping unit is considered too variable to be rated.

4.4.23 Toltec Series (Ta): "The Toltec series consists of well-drained soils that are moderately deep over a weakly cemented to strongly cemented, silica-lime pan. Depth to the pan is about 28 inches. These soils formed in alluvium deposited on old stream terraces and alluvial fans. The alluvium was derived from a wide mixture of rock, including granite, limestone, andesite, schist, tuff, and rhyolite... In a representative profile, the soil is pale-brown and very pale brown loam to a depth of about 28 inches. It is underlain by a pinkish-gray, weakly cemented to strongly cemented, silica-lime pan that extends to a depth 60 inches. The soil above the pan has a few segregations of lime and a few irregularly shaped silica-lime concretions. The soil is strongly effervescent to violently effervescent and moderately alkaline throughout. Permeability is moderate above the pan, and the pan is slowly permeable. Runoff is slow, and the erosion hazard is slight."

Typically, Toltec soils are non-plastic to low plasticity, sandy silt (ML) and sandy lean clay (CL) from the surface to a depth of 28 inches. Permeability ranges from 0.6 to 2.0 inches per hour; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 4 millimhos per centimeter. Risk of corrosion is high for uncoated steel and moderate for concrete. These soils have low shear strength, medium compacted permeability, and are susceptible to piping.

4.4.24 Tremant Series (Te, TfB, Th): "The Tremant series consists of deep, well-drained soils. These soils formed in gravelly alluvium deposited as old alluvial fans and stream terraces. The alluvium was derived from mixed sources, but mainly from igneous rocks... In a representative profile, the surface layer is light-brown very gravelly loam about 1 inch thick. The subsoil is 35 inches thick. The upper 7 inches is reddish-brown clay loam, and the lower 28 inches is reddish-brown, yellowish-red, reddish-yellow, and pink gravelly loam to a depth of 60 inches. The lower part of the subsoils and the underlying material contain large amounts of lime. The soil is moderately alkaline. Permeability is moderately slow. Runoff is medium, and the erosion hazard is slight to moderate depending upon slope."

Typically, Tremant soils are medium plasticity, clayey sand with gravel (SC) and clayey gravel with sand (GC) from the surface to a depth of 23 inches and non-plastic to low plasticity, silty sand (SM) and clayey sand (SC) to a depth of 60 inches. Permeability ranges from 0.2 to 0.6 inches per hour for the upper layer and 0.6 to 2.0 inches per hour for the underlying soil; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 4 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low for concrete. These soils have medium shear strength and medium compacted permeability.

- **4.4.25 Trix Series (Tt):** "The Trix series consists of deep, well-drained soils. These soils formed in 20 to 40 inches of recent alluvium that was deposited over an older surface on valley plains and low terraces. The alluvium was derived from granite, schist, rhyolite, and some material from basic igneous rocks... In a representative profile, the surface layer is brown clay loam about 10 inches thick. The underlying material is light-brown clay loam to a depth of 30 inches. Below this to a depth of 65 inches is old buried soil of brown sandy clay loam and clay loam. The lower part of the soil contains visible amounts of lime. The soil is moderately alkaline and strongly to violently effervescent. Permeability is moderately slow. Runoff is slow, and the erosion hazard is slight."

  Typically, Trix soils are high plasticity, sandy lean clay (CL) from the surface to a depth of 60 inches. Permeability ranges from 0.2 to 0.6 inches per hour; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 2 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low for concrete. These soils have medium shear strength and medium compacted permeability.

- **4.4.26 Tucson Series (Tu, Tw):** "The Tucson series consists of deep, well-drained soils that have large amounts of lime near the surface. These soils formed on old alluvial fans and valley plains paralleling major stream channels. The alluvium was derived from a wide variety of rocks, including granite, rhyolite, andesite, and some limestone and basalt... In a representative profile, the surface layer is light-brown loam about 14 inches thick. The subsoil is yellowish-red clay loam about 22 inches thick. The underlying material is light-brown loam to a depth of 65 inches or more. The subsoils and underlying material contain large concentration of lime. The soil is moderately alkaline throughout. Permeability is moderately slow. Runoff is medium, and the erosion hazard is slight."

  Typically, Tucson soils are non-plastic to low plasticity, sandy silt (ML) from the surface to a depth of 14 inches and medium plasticity, sandy lean clay (CL) to a depth of 60 inches. Permeability ranges from 0.6 to 2.0 inches per hour for the surface layer and 0.2 to 0.6 inches per hour for the underlying soil; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 4 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low for concrete. These soils have medium shear strength and medium compacted permeability.

- **4.4.27 Valencia Series (Va, Vc):** "The Valencia series consists of deep, well-drained soils. These soils formed in 20 to 40 inches of recent alluvium that was deposited over an older surface on valley plains and alluvial fans. The recent alluvium and the older, underlying alluvium both were derived from acid and basic igneous rocks and some shale

and limestone... In a representative profile, the surface layer is brown sandy loam about 10 inches thick. The underlying material is light-brown sandy loam to a depth of 26 inches. Below this is older, buried light-brown and brown clay loam and sandy clay loam to a depth of 60 inches or more. The upper part of the soils is weakly effervescent to violently effervescent. The soil is generally moderately alkaline, but in some area the lower part is strongly alkaline to very strongly alkaline. Permeability is moderately rapid in the upper part of the soils and moderately slow in the lower part. Runoff is slow, and the erosion hazard is slight."

Typically, Valencia soils are non-plastic, silty sand (SM) from the surface to a depth of 26 inches and medium plasticity, sandy lean clay (CL) to a depth of 60 inches. Permeability ranges from 2.0 to 6.0 inches per hour for the surface layer and 0.2 to 0.6 inches per hour for the underlying soil; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 4 millimhos per centimeter. Risk of corrosion is high for uncoated steel and moderate for concrete. These soils have medium shear strength and low compacted permeability.

4.4.28 Vint Series (Vg, Vh, Vk): "The Vint series consists of deep, well-drained soils on flood plains and low terraces along the major steams of the area. These soils formed in recent alluvium derived from igneous, metamorphic, and sedimentary rocks... In a representative profile, the soil is pale-brown loamy fine sand to a depth of 60 inches. It is stratified with thin layers of finer textured and coarser textured material. The soil is moderately alkaline and slightly effervescent. Permeability is moderately rapid. Runoff is very slow or medium, and the erosion hazard is slight."

Typically, Vint soils are non-plastic, silty sand (SM) from the surface to a depth of 60 inches. Permeability ranges from 2.0 to 6.0 inches per hour; pH ranges from 7.9 to 8.4, and salinity ranges from 1 to 4 millimhos per centimeter. Risk of corrosion is high for uncoated steel and low for concrete. These soils have medium shear strength and are susceptible to piping.

5. ENVIRONMENTAL RECORDS

TEC subcontracted All Lands Title (ALT) to perform a database search; ALT's report is presented in the Appendix. A summary of the results of their report is presented below. The left-hand column lists the title and date of the document researched. The right-hand column presents the findings. Significant discoveries are summarized in a bordered table immediately following the entry and locations are shown on the Environmental Map.

Superfund and WQARF sites, 2/95.	No WQARF sites were reported within the study area.
Directory of Arizona Municipal Solid Waste Landfills (MSWLF) and Private Solid Waste Landfills (PSWLF), 10/94.	No active landfills are reported within the study area.
Directory of Closed Solid Waste Landfills (CSWLF) and Closed Solid Waste Dumps (CSWOD), 10/94.	Five, closed solid waste dumps and two, closed solid waste landfills were reported within the study area and are listed in Table 5.1

Table 5.1 Closed Solid Waste Dumps and Landfills

Map No.	Facility Name	Facility Location
1	35th Avenue Solid Waste Dump	35th Ave and Broadway Rd
2	59th Avenue Solid Waste Dump	59th Ave and Broadway Rd
3	Rio Salado #13 Solid Waste Dump	NE Corner of 35th Ave and Broadway Rd
4	Rio Salado #35 Solid Waste Landfill	NW corner of 19th Ave and Broadway Rd
5	Rio Salado #36 Solid Waste Landfill	0.25 miles N of Broadway Rd on 27th Ave
6	Rio Salado #37 Solid Waste Dump	0.25 miles N of Broadway Rd on 32nd Ave
7	Rio Salado #40 Solid Waste Dump	1 mile S of Lower Buckeye Rd on 51st Ave

Federal CERCLIS List, 3/95.	Three CERCLIS facilities were reported within the study area and are listed in Table 5.2.

Table 5.2 Federal CERCLIS Facilities

Map No.	Facility Name	Facility Location
1	Chemical Waste Management	2301 W Broadway Rd
2	Gilbert Nursery	2301 W Southern Ave

Map No.	Facility Name	Facility Location
3	Regent Auto & Truck Parts	2528 W Broadway Rd

Arizona CERCLA Information and Data System (ACIDS List), 1/31/95.

Six ACIDS facilities were reported within the study area and are listed in Table 5.3.

Table 5.3 ACIDS Facilities

Map No.	ID	EPA ID	Facility Name	Facility Address
1	1228	AZD983484866	A&S Auto Wrecking	2528 W Broadway Rd
2	0774	AZT050010180	Chemical Waste Management	2301 W Broadway Rd
3	0098	AZD980736300	Gilbert Nursery	2301 W Southern Ave
4	0912	None	Manzanita Speedway	35th Ave & Broadway Rd
5	1209	AZD983480831	Regent Auto & Truck Parts	2528 W Broadway Rd
6	0821	None	WQ-A-1 Tires	1825 W Southern Ave

RCRA Compliance Log, 2/15/93.

Three RCRA compliance facilities were reported within the study area and are listed in Table 5.4.

Table 5.4 RCRA Compliance Facilities

Map No.	Rec No.	EPA ID	Facility Name	Facility Location
1	1805	AZT050010180	Chemical Waste Management	2301 W Broadway Rd
2	1559 & 1847	None	Harraway Metals	2630 W Broadway Rd

RCRA Notifiers, 12/29/94.

Eight RCRA notifiers were reported within the study area and are listed in Table 5.5

Table 5.5 RCRA Notifiers in the Study Area

Map No.	EPA ID	Facility Name and Address	Type
-1	AZD097121164	Hambicki Brothers, Inc. 2630 W Broadway Rd	Trans.
2	AZD981648900	City of Phoenix Foothills UDH 6300 S 7th Ave	Gen. 2
3	AZD983469800	The Calmat Companies 4830 S 43rd Ave	Gen. 3
4	AZD983473745	Bob Auto Pickup & Wrecking 3408 W Broadway Rd	Gen. 2
5	AZD983483405	Swift Transport 3106 W Broadway Rd	Gen. 2
6	AZT050010180	Chemical Waste Management, Inc. 2301 W Broadway Rd	Gen. 1
7	AZ0000062125	Self Service Salvage 3230 W Broadway Rd	Gen. 2
8	AZD982344483	Stacy White Farms 31st Ave & Dobbins Rd	Gen. 1

Notes: 1) Gen. 1 indicates the facility is generator of hazardous waste.

2) Gen. 2 indicates the facility generates 100 kg/month but less than 1000 kg/month of non-acutely hazardous waste.

3) Trans. indicates the facility is engaged in the off-site transportation of hazardous waste by air, rail, road and/or water.

SARA Title III Extremely Hazardous Substances Sites, SARA Title III List, 10/94

One Title III Extremely Hazardous Substances Site was reported within the study area and is listed in Table 5.6.

Table 5.6 SARA Title III Extremely Hazardous Substances Sites

Map No.	ID	EPA No.	Facility Name	Facility Address
1	200087	AZT05001018	Chemical Waste Management, Inc.	2301 W Broadway Rd

Federal Emergency Response Notification System (ERNS) from 1983 through 3/95.

Six hazardous material incidents were reported within the study area and are listed in Table 5.7.

Table 5.7 ERNS Emergency Responses

Map No.	Date	Discharger & Location	Material Spilled
1	6/1/87	Unknown 2301 W Broadway Rd	1 lbs. of Chrome.
2	4/14/87	US Justice Department 2301 W Broadway Rd	1 oz. of methylpropene, assorted glassware, and ether.
3	4/23/90	Chemical Waste Management 2301 W Broadway Rd	Non-hazardous release.
4	NA	Unknown 43rd Ave & Baseline Rd	10 gal. of drug store waste.
5	11/22/91	Unknown 51st Ave, ½ mile S of Southern Av	Unknown quantity of unknown chemical.
6	4/21/92	Arizona Recyclers 5040 S 51st Ave	55 gal. of used oil.

Emergency Response Unit, Hazardous Materials Incident Logbooks for 1984 through 12/31/94.

Thirty-two hazardous material incidents were reported within the study area and are listed in Table 5.8.

Table 5.8 HAZMAT Emergency Responses

Map No.	AZ No.	Date	Facility Name	Facility Address
1	94-078-A	12/20/94	AAA Broadway Auto Parts	2000 W Broadway Rd
2	94-072-B	12/21/94	Best Disposal	5436 S 43rd Ave
3	93-034-F	6/28/93	Chemical Waste Management	2301 W Broadway Rd
4	93-021-G	10/29/93	All-A-Matic Transmissions	3011 W Broadway Rd
5	92-088-B	10/3/92	Unknown	51st Ave, ½-mile S of Southern Ave
6	92-121-C	8/24/92	Unknown	Salt River & 35th Ave
7	92-008-D	4/21/92	Arizona Oil Recyclers	5040 S 51st Ave
8	92-036-D	11/2/92	Unknown	29th Ave, S of Baseline Rd
9	91-058-C	4/22/91	Savco Gas Station	1701 W Baseline Rd
10	90-002-B	1/10/90	Unknown	27th Ave, S of Broadway Rd
11	90-039-A	4/19/90	Tanner Construction Co.	19th Ave & Broadway Rd
12	90-091-D	7/5/90	A-1 Tire Company	4825 W Southern Ave
13	90-098-A	9/10/90	Stacey White	51st Ave & Estrella
14	89-233	8/8/89	Chemical Waste Management	2301 W Broadway Rd
15	89-283	9/14/89	Unknown	3200 W Elliot Rd
16	88-149	5/23/88	None	3727 W Baseline Rd
17	88-237	8/10/88	Country Boy Cropdusters	43rd Ave & Baseline Rd
18	88-369	12/1/88	Unknown	51st Ave & Roeser Rd
19	87-003	1/6/87	Unknown	43rd Ave & Salt River
20	87-041	2/12/87	Unknown	43rd Ave & Salt River

Map No.	AZ No.	Date	Facility Name	Facility Address
21	87-112 & 87-113	5/18/87	Unknown	43rd Ave & Salt River
22 -	87-127	6/3/87	Chemical Waste Management	2301 W Broadway Rd
23	87-242	12/2/87	Unknown	43rd Ave & Salt River
24	86-030	3/21/86	Unknown	9641 S 51st Ave
25	86-083	7/7/86	Chemical Waste Management	2301 W Broadway Rd
26	86-115	8/19/86	Chemical Waste Management	2301 W Broadway Rd
27	85-102	8/27/85	Chemical Waste Management	2301 W Broadway Rd
28	85-134	10/30/85	Southwest Forest	2301 W Broadway Rd
29	84-019	3/20/84	Chemical Waste Management	2301 W Broadway Rd
30	84-034	5/18/84	Chemical Waste Management	2301 W Broadway Rd
31	84-086	9/25/84	Chemical Waste Management	2301 W Broadway Rd
32	84-106	11/15/84	Western States Petroleum	3332 W Broadway Rd

Arizona UST-DMS Facility and Tank Data Listing by City, 3/1/95.

Thirty-three facilities with underground storage tanks were reported within the study area and are listed in Table 5.9.

Table 5.9 USTs in Study Area

Map No.	Facility Name and Address	Description of UST's
1	Agricultural Enterprises 43rd Ave & Dobbins Rd Laveen, AZ 85339	Two, 24-year-old, 2,000-gallon, bare steel tanks used to store gasoline -- Status is Removed. Two, 19-year-old, 6,000-gallon, bare steel tanks of unknown use -- Status is Removed.
2	Arnold Machinery Co. 6024 W Southern Ave Laveen, AZ, 85339	One, 7-year-old, 2,000-gallon, cathodic steel tank used to store diesel -- Status is Current.
3	Coreslab Structures, Inc. 5026 W Southern Ave. Laveen, AZ 85339	One, 13-year-old, 10,000-gallon, fiberglass tank used to store diesel -- Status is Removed. One, 13-year-old, 10,000-gallon, fiberglass tank used to store gasoline -- Status is Removed. One, 9-year-old, 550-gallon, bare steel tank used to store used oil -- Status is Removed.
4	Haley's Masonry, Inc. 8402 S 43rd Ave Laveen, AZ 85339	One, 24-year-old, 1,000-gallon, bare steel tank used to store gasoline -- Status is Removed. One, 21-year-old, 10,000-gallon, bare steel tank used to store gasoline -- Status is Removed.
5	Knapple Farms 3101 W Dobbins Rd Laveen, AZ 85339	One, 8,000-gallon, bare steel tank of unknown age used to store gasoline -- Status is Removed. One, 6,000-gallon, bare steel tank of unknown age used to store diesel -- Status is Removed.
6	Laveen Co. 163169 9023 S 51st Ave Laveen, AZ 85339	One, 19-year-old, 550-gallon, bare steel tank used to store diesel -- Status is Removed.
7	Laveen Country Store 5099 W Dobbins Rd Laveen, AZ 85339	Three, 16-year-old, 6,000-gallon, bare steel tanks used to store gasoline -- Status is Current.

Map No.	Facility Name and Address	Description of UST's
8	Laveen School District 9401 S 51st Ave Laveen, AZ 85339	One, 12-year-old, 12,000-gallon, bare steel tank used to store diesel -- Status is Removed. One, 12-year-old, 12,000-gallon, bare steel tank used to store gasoline -- Status is Removed. One, 12-year-old, 6,000-gallon, bare steel tank used to store gasoline -- Status is Removed. One, 12-year-old, 500-gallon, bare steel tank used to store used oil -- Status is Removed. One, 550-gallon, bare steel tank of unknown age used to store used oil -- Status is Removed.
9	Paul E. Oliver 4023 W Elliot Rd Laveen, AZ 85339	One, 22-year-old, 500-gallon, bare steel tank used to store gasoline -- Status is Current.
10	South Mountain Gin 6411 S 51st Ave Laveen, 85339	One, 500-gallon, bare steel tank of unknown age used to store gasoline -- Status is Removed.
11	Tumbleweed Service 7145 S 51st Ave Laveen, AZ 85339	One, 10-year-old, 4,000-gallon, bare steel tank used to store kerosene -- Status is Removed. One, 10-year-old, 6,000-gallon, bare steel tank used to store kerosene -- Status is Removed. One, 10-year-old, 10,000-gallon, bare steel tank used to store diesel -- Status is Removed.
12	Western Meat Company 3201 W Southern Ave Laveen, AZ 85339	One, 18-year-old, 8,000-gallon, bare steel tank used to store diesel -- Status is Removed. One, 18-year-old, 10,000-gallon, bare steel tank used to store gasoline -- Status is Removed. One, 1,200-gallon, bare steel tank of unknown age used to store gasoline -- Status is Removed.
13	Circle K #1844 3508 W Baseline Rd Phoenix, AZ, 85339	Three, 9-year-old, 10,000-gallon, fiberglass tanks used to store gasoline -- Status is Current.

Map No.	Facility Name and Address	Description of UST's
14	Beal's Contracting Co. 8831 S 27th Ave Phoenix, AZ 85009	One, 18-year-old, 3,000-gallon, bare steel tank used to store diesel -- Status is Temporary. One, 18-year-old, 3,000-gallon, bare steel tank used to store gasoline -- Status is Temporary.
15	Wayne Weiler 2323 W S Mountain Ave Phoenix, AZ 85041	One, 4,000-gallon, bare steel tank of unknown age used to store diesel -- Status is Removed. One, 2,000-gallon, bare steel tank of unknown age used to store gasoline -- Status is Removed.
16	Circle K #670 4422 S 19th Ave Phoenix, AZ 85041	Three, 13-year-old, 10,000-gallon, bare steel tanks used to store gasoline -- Status is Removed.
17	Circle K #693 5850 S 19th Ave Phoenix, AZ 85041	Two, 22-year-old, 10,000-gallon, bare steel tanks used to store gasoline -- Status is Removed. One, 22-year-old, 4,000-gallon, bare steel tank used to store gasoline -- Status is Removed.
18	Circle K #851 3449 W Southern Ave Phoenix, AZ 85041	Two, 21-year-old, 10,000-gallon, bare steel tanks used to store gasoline -- Status is Removed. One, 21-year-old, 4,000-gallon, bare steel tank used to store gasoline -- Status is Removed.
19	Circle K #944 722 W Southern Ave Phoenix, AZ 85041	Three, 13-year-old, 10,000-gallon, bare steel tanks used to store gasoline -- Status is Removed.
20	Circle K #1739 7440 S 7th Ave Phoenix, AZ 85041	Three, 8-year-old, 10,000-gallon, fiberglass tanks used to store gasoline -- Status is Current.
21	Construction Yard 2801 W Broadway Rd Phoenix, AZ 85041	Two, 10-year-old, 10,000-gallon, fiberglass tanks used to store diesel -- Status is Removed.
22	Cooley Wholesale Lumber 1930 W Broadway Rd Phoenix, AZ 85041	One, 8,000-gallon, bare steel tank of unknown age used to store gasoline -- Status is Removed. One, 12,000-gallon, bare steel tank of unknown age used to store diesel -- Status is Removed.

Map No.	Facility Name and Address	Description of UST's
23	Former Circle K #1790 709 W Southern Ave Phoenix, 85041	Three, 9-year-old, 10,000-gallon, fiberglass tanks used to store gasoline -- Status is Current.
24	Former Phillips 66 Co. 702 W Southern Ave Phoenix, AZ 85041	Two, 27-year-old, 6,000-gallon, bare steel tanks used to store gasoline -- Status is Removed. One, 27-year-old, 550-gallon, bare steel tank used to store used oil -- Status is Removed. One, 19-year-old, 10,000-gallon, bare steel tank used to store gasoline -- Status is Removed.
25	Fuelco #112 2401 W Broadway Rd Phoenix, AZ 85041	One, 16-year-old, 4,000-gallon, bare steel tank used to store gasoline -- Status is Removed. Two, 16-year-old, 6,000-gallon, bare steel tanks used to store gasoline -- Status is Removed. One, 16-year-old, 4,000-gallon, bare steel tank used to store diesel -- Status is Removed. One tank of unknown age, material, and size used to store used oil -- Status is Removed.
26	Herseth Meat Packing 3201 W Southern Ave Phoenix, AZ 85041	One, 24-year-old, 1,000-gallon, bare steel tank used to store used oil -- Status is Removed.
27	Hit-N-Run Food Stores 1869 W Southern Ave Phoenix, AZ 85041	Three, 5-year-old, 10,000-gallon, fiberglass tanks used to store gasoline -- Status is Current.
28	M&M Auto Storage Pool 2299 W Broadway Rd Phoenix, AZ 85041	One, 18-year-old, 10,000-gallon, bare steel tank used to store gasoline -- Status is Removed.
29	Rotman Properties 3250 W Broadway Rd Phoenix, AZ 85041	Two, 1,000-gallon, bare steel tanks of unknown age used to store gasoline -- Status is Removed.
30	Royden Construction Co. 2844 W Broadway Rd Phoenix, AZ 85041	Four, 27-year-old, 500-gallon, bare steel tanks used to store gasoline -- Status is Removed.

Map No.	Facility Name and Address	Description of UST's
31	Smith Pre-Cast 2410 W Broadway Rd Phoenix, AZ 85041	One, 23-year-old, 10,000-gallon, bare steel tank used to store diesel -- Status is Current. One, 25-year-old, 8,000-gallon, bare steel tank used to store gasoline -- Status is Current.
32	Tatel, Inc. 5250 S 43rd Ave Phoenix, AZ 85041	One, 6-year-old, 3,000-gallon, fiberglass tank used to store gasoline -- Status is Current. One, 6-year-old, 15,000-gallon, fiberglass tank used to store diesel -- Status is Current.
33	Vista Construction 2836 W Broadway Rd Phoenix, AZ 85041	Two, 1,000-gallon, bare steel tanks of unknown age used to store gasoline -- Status is Current.

Drywell Registration List, 1/4/95.

The location of dry wells reported within the study area and are listed in Table 5.10.

Table 5.10 Dry Well Locations

Map No.	Reg. No(s).	Facility Name	Facility Location
1	9912 & 9913	A.G. Products	2525 W Broadway Rd
2	8227 & 8228	City of Phoenix Foothills Village Apartments	6300 S 7th Ave
3	8449	City of Phoenix Streets	Southern Ave, W of 7th Ave
4	7281 & 7282	Fire Station #39	2276 W Southern Ave
5	1761 & 1720	Laveen Elementary School District #59	9401 S 51st Ave
6	8056 & 8059	Laveen School Campus	9401 S 51st Ave

Aquifer Protection Permit Program - Existing Facility with Application Submittal Deadlines, 1/1/95.	No listings were reported within the study area.
Groundwater Permitted Facilities, 3/15/94.	No permitted facilities were reported in the study area.
Arizona LUST Data Listing by City, 1/5/96.	Twelve LUST sites were reported within the study area and are listed in Table 5.11.

Table 5.11 LUST Sites

Map No.	Facility Name and Location	LUST ID Number, Notification Date, and Status
1	Circle K #670 4422 S 19th Ave Phoenix, AZ 85041	0001283*3357.01 - 2/3/94 - Status is Open
2	Circle K #851 3449 W Southern Ave Phoenix, AZ 85041	0001334*3219.01 - 12/3/93 - Status is Open
3	Cooley Wholesale Lumber Co. 1930 W Broadway Rd Phoenix, AZ 85041	0002113*2842.01 - 6/3/93 - Status is Open
4	Former Circle K #1790 709 W Southern Ave Phoenix, AZ 85041	0001482*2598.01 - 3/5/92 - Status is Open
5	Rotman Properties 3250 W Broadway Rd Phoenix, AZ 85041	0008079*2648.01 - 1/22/93 - Status is Open
6	Coreslab Structures, Inc. 5026 S 43rd Ave Laveen, AZ 85339	0004737*3515.01 - 5/11/94 - Status is Open
7	Laveen School District Office 9401 S 51st Ave Laveen, AZ 85339	0002935*2556.01 - 11/18/92 - Status is Open
8	Tumbleweed Service 7145 S 51st Ave Laveen, AZ 85339	0006128*3305.01 - 1/14/94 - Status os Open

Map No.	Facility Name and Location	LUST ID Number, Notification Date, and Status
9	Western Meat Company 3201 W Southern Ave Laveen, AZ 85339	0005622*2811.01 - 5/19/93 - Status is Open

6. DISCUSSION

The summary and conclusions presented herein are based on limited research and our understanding of the project as presented in the Project Description. This information is intended to be used for preliminary evaluation only of proposed drainage improvement alternatives. Additional services will be required during the iterative process of selecting the preferred drainage improvement alternatives. Services that may be required during the selection process include: additional research, site reconnaissance, subsurface exploration, groundwater monitoring, field and laboratory soil tests, phase I or II environmental site assessments, and engineering analysis. The geotechnical engineer should be contacted for recommendations regarding additional services needed during the selection process.

7. SUMMARY AND CONCLUSIONS

The study area is in a, primarily, agricultural area of southwest Phoenix. Other land uses include residential, commercial, industrial, and native desert. Away from the South Mountains, which is where most improvement alternatives are being considered, the area is relatively flat. There is a mild downward gradient to the northwest, with natural grades ranging from about three percent in the southeast to one percent in the northwest part of the study area. Bedrock, related to the South Mountains, is suspected to dip moderately to the north (away from the mountains) and underlie surficial soils comprised of Tertiary (old) and Quaternary (recent) alluvial materials.

Geotechnical factors that may affect the selection process include groundwater and soil conditions. Well data in the study area from the 1990s indicates that groundwater will only affect relatively deep improvements because, in most of the study area, groundwater was 30 to 60 feet deep. However, shallower depths were reported near the mountains and the Western Canal. Accordingly, groundwater should be considered a factor in areas of reported, shallow groundwater and where relatively, deep improvement alternatives are being considered.

Soils formed in recent and old alluvium are predominant in the study area. A tremendous amount of information from the SCS soil survey of Maricopa County was presented in Soil Conditions, and key elements from that Section are summarized in Table 7.1 for easier cursory evaluation of improvement alternatives. Elements included in the table are: SCS soils series, Unified Soils Classification System soil classification, natural and compacted permeability, risk of corrosion for uncoated steel and concrete, compacted shear strength, and natural erosion hazard and susceptibility of compacted soil to piping. Because of its limitations, information from the SCS survey should only be used for general evaluation of shallow improvement alternatives.

Mapped soils in the study area vary from fat clays (CH) to well-graded gravels with silt (GW-GM). With respect to natural and compacted permeability, reported characteristics agree with geotechnical theory; granular and non-plastic soils have moderate to high permeabilities, and fine-grained and plastic soils have moderate to low permeabilities. Agreement with geotechnical theory was also reported with respect to compacted shear strength and susceptibility to piping; granular and well-graded soils have higher shear strengths than fine-grained and poorly graded soils, and fine-grained soils are commonly susceptible to piping. Natural erosion risk was slight for most soils, but increased to moderate for some soils because of slope. The risk of corrosion was high for uncoated steel for almost all soils and low for concrete for most soils. However, variations from this pattern were reported, and corrosivity should be evaluated for alternatives this characteristic may affect. Calcareous soils, cobbly soils, hardpan, and shallow bedrock were also reported in some soil series and should be considered during the evaluation process, especially with regard to excavatability.

The environmental research performed for this study is the first step in the evaluation of environmental concerns being associated with any improvement alternative. Public records from several sources have been compiled in Environmental Records and reported listings have been located on the Environmental Map. This information should be used as a guide in planning environmental evaluation of improvement alternatives as the selection process progresses.

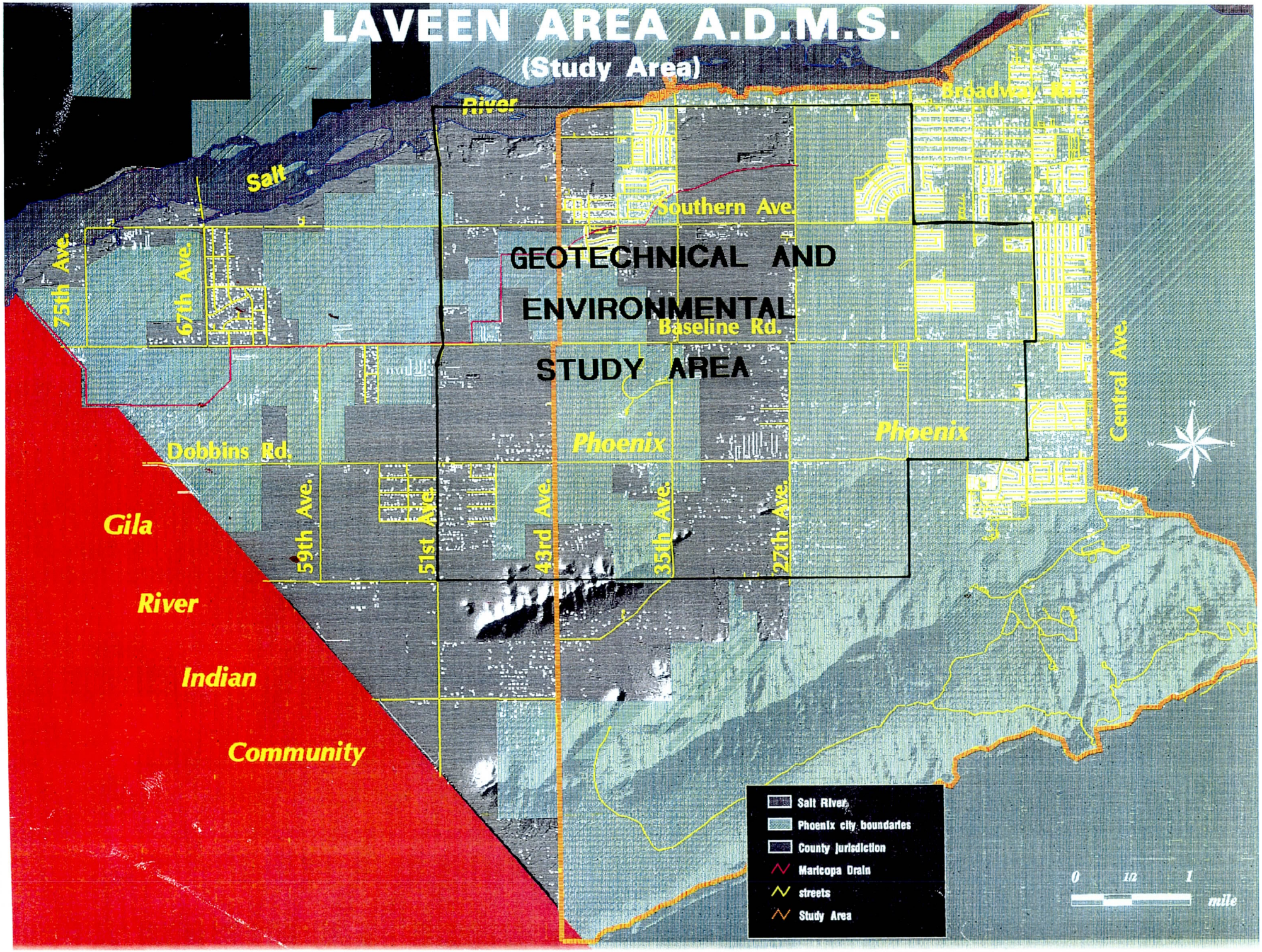
Possible concerns not reported in the study area during this initial research include: EPA Superfund sites, ADEQ WQARF sites, active landfills, facilities with aquifer protection permit application submittal deadlines, and groundwater permitted facilities. Possible concerns reported in the study area during this initial research include: five closed solid waste dumps, two closed solid waste landfills, three Cerclis facilities, six ACIDS facilities, three RCRA compliance facilities, eight RCRA notifiers, one SARA Title III site, over 30 hazardous materials incidents, 33 UST sites, six dry well sites, and 12 LUST sites. Most of these possible concerns are concentrated in three areas -- (1) 19th Avenue from Southern Avenue to Broadway Road then along Broadway Road to 35th Avenue, (2) 43rd Avenue from Southern Avenue to Broadway Road, and (3) 51st Avenue from Dobbins Road to Broadway Road.

Table 7.1 Summary of Key Soil Condition Elements

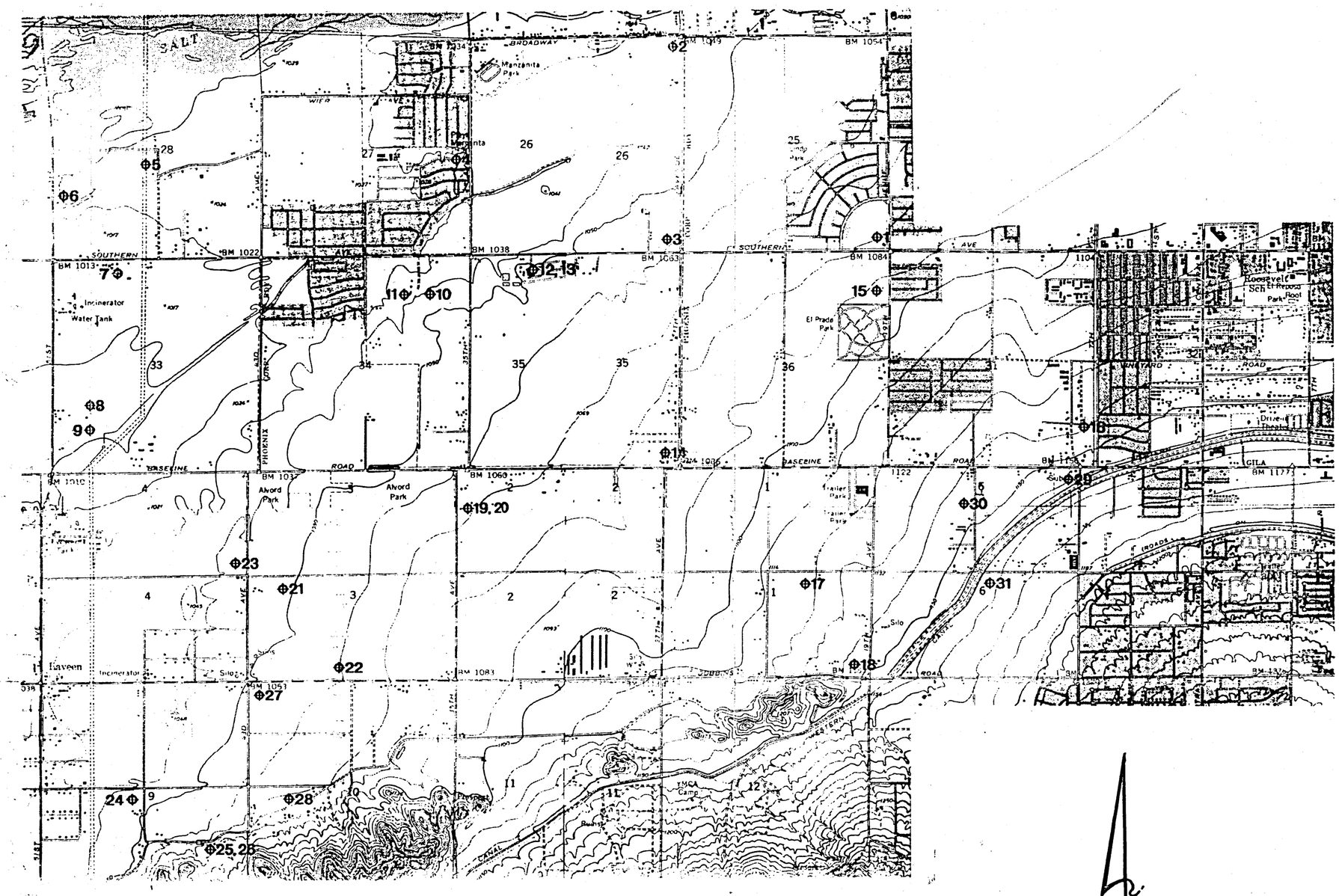
SCS Soil Series	USCS Soil Class	Permeability		Corrosivity		Comp Shear Strngth	Erodibility	
		Nat'l	Comp	Steel	Conc		Nat'l	Comp
Agualt	ML SP	mod v rapid	high	high	low	medium	slight	
Antho	SM	m rapid	medium	high	low	medium	sl to mod	piping
Avondale	CL ML	m slow mod	medium	high	low to high	medium	slight	piping
Brios	SM SP	rapid	medium	moderate	low to moderate	medium	slight	piping
Carrizo	SM SW-SM	rapid	high	low	low	high	slight	
Casa Grande	CL ML	slow	low	high	high	low	slight	piping
Cashion	CL/CH ML	slow	low	high	low to moderate	medium	slight	piping
Cherioni-Rock	GM	mod v slow		high	low		sl to mod	
Coolidge	SM SC	m rapid	medium	high	low	medium	sl to mod	piping
Ebon	GC	slow	low	high	low	medium	sl to mod	
Estrella	ML CL	m slow	medium	high	low	low	slight	piping
Gadsden	CH	slow	low	high	moderate	low	slight	
Gilman	ML	mod	medium	high	low to high	low	sl to mod	piping
Gilman Variant	ML CH	mod slow	low	high	high	low	slight	piping
Glenbar	CL	m slow	medium	high	low to mod	low	slight	piping

SCS Soil Series	USCS Soil Class	Permeability		Corrosivity		Comp Shear Strngth	Erodibility	
		Nat'l	Comp	Steel	Conc		Nat'l	Comp
Gunsight	GC	mod	low	high	low	medium	sl to mod	
Laveen	ML CL	mod	medium	high	low to mod	low	sl to mod	piping
Mohall	CL ML	m slow	medium	high	low	low	slight	piping
Perryville	SC-SM SM	mod	medium	high	low	medium	sl to mod	
Pinal	ML SM	mod		high	low		sl to mod	
Rillito	SM SC	mod	medium	high	low	medium	sl to mod	
Rock Outcrop								
Toltec	ML CL	mod slow	medium	high	moderate	low	slight	piping
Tremant	SC/GC SM/SC	m slow	medium	high	low	medium	sl to mod	
Trix	CL	m slow	medium	high	low	medium	slight	
Tucson	ML CL	m slow	medium	high	low	medium	slight	
Valencia	SM CL	m rapid m slow	low	high	moderate	medium	slight	
Vint	SM	m rapid		high	low	medium	slight	piping

APPENDIX


LAVEEN AREA A.D.M.S.
(Study Area)
GEOTECHNICAL AND
ENVIRONMENTAL
STUDY AREA
Salt
River
Southern Ave.
Baseline Rd.
Dobbins Rd.
Broadway Rd.
75th Ave.
67th Ave.
59th Ave.
51st Ave.
43rd Ave.
35th Ave.
27th Ave.
Central Ave.
Phoenix
Phoenix
Gila
River
Indian
Community
Salt River
Phoenix city boundaries
County jurisdiction
Maricopa Drain
streets
Study Area
0
1/2
1
mile

MAP NO.	ADWR NUMBER	SURFACE ELEVATION	HIGHEST YEAR	LOWEST YEAR	LATEST YEAR
1	A-01-02 25DDD	1084.0	1010.0/1972	991.1/1964	1010.0/1972
2	A-01-02 26AAA	1042.0	1014.3/1979	967.6/1959	1004.3/1994
3	A-01-02 26DDD	1061.0	1011.5/1984	996.5/1972	1004.0/1994
4	A-01-02 27DAA	1029.0	984.0/1951	984.0/1951	984.0/1951
5	A-01-02 28CAA	1022.0	983.9/1966	958.3/1964	978.6/1967
6	A-01-02 28CBC	1021.0	1002.3/1946	969.8/1955	969.8/1955
7	A-01-02 33BAB	1015.0	965.0/1969	965.0/1969	965.0/1969
8	A-01-02 33CBD	1008.0	978.8/1991	978.0/1991	978.0/1991
9	A-01-02 33CCA	1010.0	975.0/1951	975.0/1951	975.0/1951
10	A-01-02 34AAC	1032.0	977.0/ N/A	977.0/ N/A	977.0/ N/A
11	A-01-02 34ABD	1040.0	994.3/1982	994.3/1982	994.3/1982
12	A-01-02 35BAB1	1051.0	993.8/1991	993.8/1991	993.8/1991
13	A-01-02 35BAB2	1051.0	997.0/1982	997.0/1982	997.0/1982
14	A-01-02 35DDD	1084.0	1034.0/1991	986.0/1963	1034.0/1991
15	A-01-02 36AAD	1095.0	1034.0/1991	986.0/1963	1034.0/1991
16	A-01-03 31DDA	1137.0	1037.9/1984	1018.0/1991	1028.0/1995
17	D-01-02 01DBA	1119.0	1049.5/1984	1029.5/1991	1029.5/1991
18	D-01-02 01DDD	1150.0	1052.0/1983	1029.0/1964	1052.0/1983
19	D-01-02 02BBC1	1073.0	973.0/1971	973.0/1971	973.0/1971
20	D-01-02 02BBC2	1073.0	1013.0/1973	1013.0/1973	1013.0/1973
21	D-01-02 03CBA	1050.0	1003.7/1984	994.1/1991	1003.7/1984
22	D-01-02 03CDD	1062.0	1027.0/1979	934.0/1972	967.1/1994
23	D-01-02 04ADD	1044.0	1004.5/1982	1001.5/1991	1001.5/1991
24	D-01-02 09CAA	1044.0	1975	1975	1975
25	L-01-02 09DDA1	1082.0	1024.9/1991	1024.9/1991	1024.9/1991
26	D-01-02 09DDA2	1090.0	1071.0/1972	1071.0/1972	1071.0/1972



MAP NO.	ADWR NUMBER	SURFACE ELEVATION	HIGHEST YEAR	LOWEST YEAR	LATEST YEAR
27	D-01-02 10BBB	1053.0	1020.9/1984	1014.5/1991	1014.5/1991
28	D-01-02 10CAB	1077.0	1076.4/1981	1022.0/1973	1061.0/1994
29	D-01-03 06AAA	1175.0	1055.0/1981	1018.0/1991	1023.6/1994
30	D-01-03 06BAD	1148.0	1054.0/1984	1031.7/1991	1031.7/1991
31	D-01-03 06DBB	1160.0	1067.0/1973	992.0/1986	992.0/1986

N

⊕ REGISTERED WATER WELL LOCATIONS

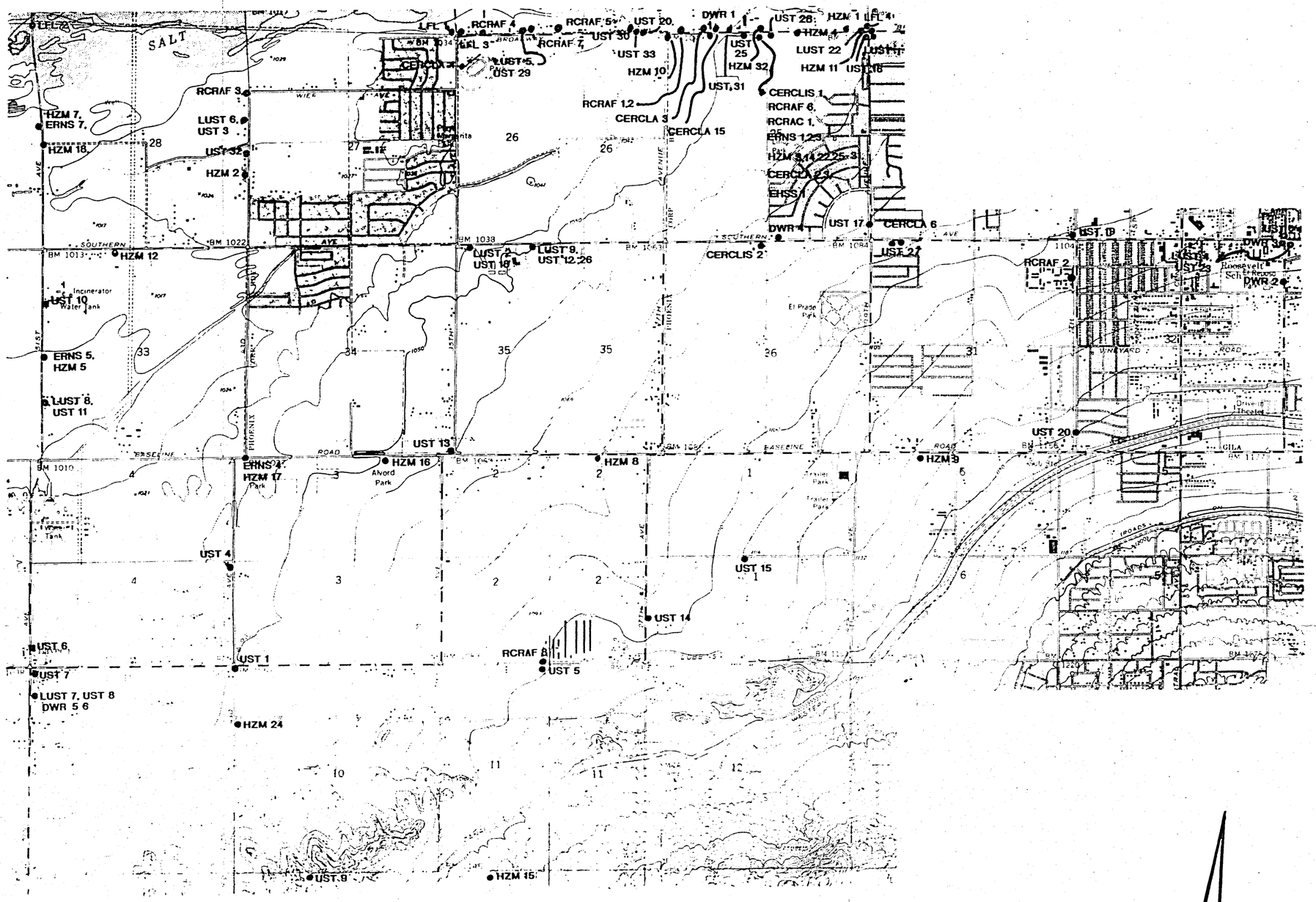
GROUNDWATER MAP

SCALE: 1" = 2,000'	APPROVED BY: F. COSTELLO	DRAWN BY: B J F
DATE: 11/9/95		REVISED: 7/1/96

SOUTH PHOENIX/LAVEEN
DRAINAGE IMPROVEMENT PROJECT

REF: ADWR BASIC DATA

DRAWING NUMBER 95019-A



LEGEND

DWR	-	ARIZONA DEPARTMENT of WATER RESOURCES
LFL	-	LANDFILL LOCATION
UST	-	UNDERGROUND STORAGE TANK
LUST	-	LEAKING UNDERGROUND STORAGE TANK
EHSS	-	EXTREMELY HAZARDOUS SUBSTANCE SITE
ERNS	-	EMERGENCY RESPONSE NOTIFICATION SYSTEM
CERCLA	-	COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION and LIABILITY ACT
CERCLIS	-	COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION and LIABILITY INCIDENT SITE
RCRAF	-	RESOURCE CONSERVATION and RECOVERY ACT FACILITY

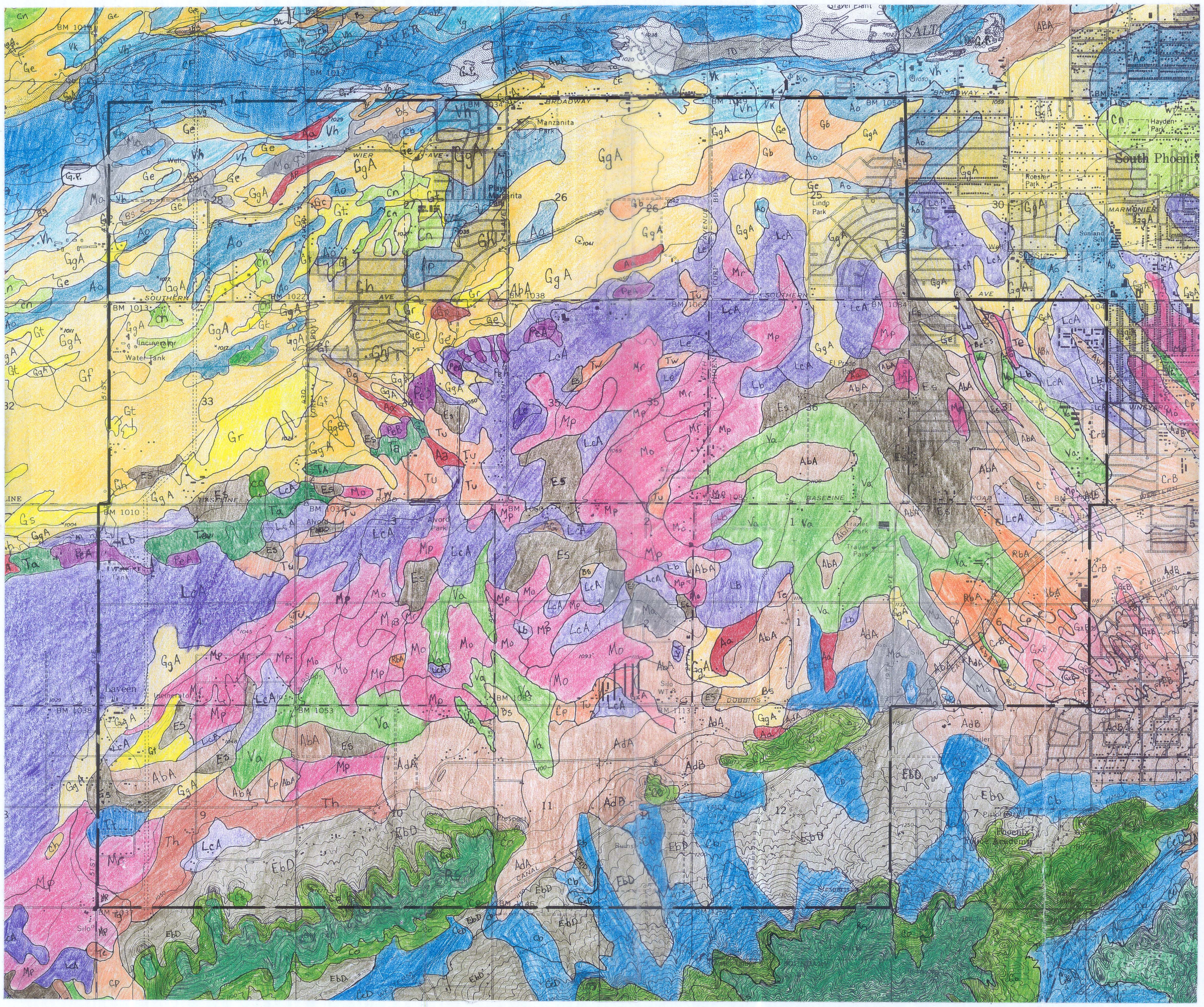
ENVIRONMENTAL MAP

SCALE: 1"= 2,000'	APPROVED BY: F. COSTELLO	DRAWN BY: B J F
DATE: 11/9/95		REVISED: 7/1/96

SOUTH PHOENIX/LAVEEN
DRAINAGE IMPROVEMENT PROJECT

REF: ALL LANDS TITLE # 95-343D

DRAWING NUMBER: 95019-C



LEGEND
SOILS CONSERVATION SERIES

- Agualt (Aa)
- Antho (AbA, AdA, AdB, Ae, AfB, AkB)
- Avondale (Ao, Ap)
- Brios (Br, Bs)
- Carrizo (Cb, CeD, Cf)
- Casa Grande (Cm)
- Cashion (Cn)
- Cherioni-Rock Outcrop Complex (CO)
- Coolidge (Cp, CrB)
- Ebon (EbD)
- Estrella (Es)
- Gadsden (Gb, Gc)
- Gilman (Ge, Gf, GgA, GgB, Gh)
- Gilman Varient (Gp)
- Glenbar (Gr, Gs, Gt)
- Gunsight (GxA, GxB)
- Laveen (Lb, LcA, Le)
- Mohall (Mo, Mp, Mr)
- Perryville (PeA, PeB)
- Pinal (PsA)
- Rillito (RbA)
- Rock Outcrop (RS)
- Toltec (Ta)
- Tremant (Te, TfB, Th)
- Trix (Tt)
- Tucson (Tu, Tw)
- Valencia (Va, Vc)
- Vint (Vg, Vh, Vk)

N

SOIL SERIES MAP

SCALE: 1"= 2,000'	APPROVED BY: F. COSTELLO	DRAWN BY A C
DATE: 6 / 25 / 96		REVISED 7//1/96

SOUTH PHOENIX / LAVEEN
DRAINIGE IMPROVEMENT PROJECT

REF : USDA SOILS CONSEVATION SERVICE	DRAWING NUMBER 95019 - B

ALL LANDS TITLE

P.O. Box 11644, Phoenix, AZ 85061
(602) 242-7921 Fax (602) 242-4493

DATABASE (ASTM) SEARCH

YOUR FILE NO:

ALT FILE NO: 95-343D

DATE: August 10, 1995

ALL LANDS TITLE hereby reports the search results of Federal and State Databases according to ASTM standards for Phase I Environmental Site Assessments E 1527-94. This is a confidential, privileged and protected document for the use of Terrane Engineering. All Lands Title is not responsible for errors in the available records. The total liability is limited to the fee paid for this report.

1. The land referred to in this report is located in Maricopa County, Arizona, described as follows:

   Property bounded by 51st Avenue on the West, the Salt River on the North; Elliot Road, Dobbins Road, and Southern Avenue on the Southerly boundaries and 19th Avenue and 7th Avenue on the Easterly boundaries.

WATER QUALITY ASSURANCE REVOLVING FUND
AND
COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT
February 1995

No National Priorities List (NPL) Sites were found within the boundaries on this project.

No WQARF Priority List Study Areas were found within the boundaries on this project.

Federal CERCLIS List
March 1995

This list was checked for CERCLIS facilities within the boundaries of this project:

Facility	Address
Chemical Waste Management Inc.	2301 W. Broadway
Gilbert Nursery	2301 W. Southern Ave.
Regent Auto & Truck Parts	2528 W. Broadway

ARIZONA CERCLA INFORMATION AND DATA SYSTEM
(ACIDS)
dated 1-31-95

This list was checked for sites which occurred within the boundaries of this project:

ID	EPA ID	Facility	Address
1228	AZD983484866	A & S Auto Wrecking	2528 W. Broadway Rd.
0774	AZT050010180	Chemical Waste Management	2301 W. Broadway Rd.
0098	AZD980736300	Gilbert Nursery	2301 W. Southern Ave.
0912	None	Manzanita Speedway	35th Ave. & W. Broadway
1209	AZD983480831	Regent Auto & Truck Parts	2528 W. Broadway Rd.
0821	None	WQ-A-1 Tires	1825 W. Southern Ave.

SARA TITLE III EXTREMELY HAZARDOUS SUBSTANCES SITES
from the County SARA Title III List

This list was checked for sites which occurred within the boundaries of this project:

ID	EPA #	Facility	Address
200087	AZT05001018	Chem Waste Mgmt. Inc.	2301 W. Broadway

RESOURCE CONSERVATION AND RECOVERY ACT COMPLIANCE FACILITIES
from the Arizona Department of Environmental Quality RCRA Compliance Log
dated 2-15-95

This list was checked for compliance facilities within the boundaries of this project:

REC#	EPA ID	FACILITY NAME	ADDRESS
1805	AZT050010180	Chem Waste Management	2301 W. Broadway
1559 & 1847	None	Harraway Metals	2630 W. Broadway

RESOURCE CONSERVATION AND RECOVERY ACT FACILITIES
from the Arizona Department of Environmental Quality RCRA Log
dated 12-29-94

This list was checked for Federal RCRA TSD Facilities and Generators which occurred within the boundaries of this project:

SITE	EPA ID	ADDRESS	STATUS
Hambicki Brothers, Inc.	AZD097121164	2630 W. Broadway Road	Transporter
City of Phoenix Foothills UDH	AZD981648900	6300 S. 7th Ave.	Gen-2
The Calmat Companies	AZD983469800	4830 S. 43rd Ave.	Gen-3
Bob Auto & Pickup Wrecking	AZD983473745	3408 W. Broadway	Gen-2
Swift Transport	AZD983483405	3106 W. Broadway	Gen-2
Chemical Waste Management, Inc.	AZT050010180	2301 W. Broadway	TSD, Gen-1, Transporter Burner/Blender; Part A
Self Service Salvage	AZ0000062125	3230 W. Broadway	Gen-2
Stacy White Farms	AZD982344483	31st Ave. & Dobbins	Gen-1

CODES:

Gen-1: Large quantity generator
Gen-2: Small quantity generator
Gen-3: Limited quantity generator

HAZARDOUS MATERIAL INCIDENTS
from the Arizona Department of Environmental Quality Emergency Response Log
1984 thru 12-31-94

This list was checked for hazardous material incidents which occurred within the boundaries of this project:

NO.	DATE	NAME	ADDRESS
94-078-A	12/20/94	AAA Broadway Auto Parts	2000 W. Broadway
94-072-B	12/21/94	Best Disposal	5436 S. 43rd Ave.
93-034-F	6/28/93	Chemical Waste Mng.	2301 W. Broadway
93-021-G	10/29/93	All-A-Matic Transmissions	3011 W. Broadway
92-088-B	10/3/92	Unknown	51st Ave. 1/2 mi. South of Southern
92-121-C	8/24/92	Unknown	Salt River & 35th Ave.
92-008-D	4/21/92	AZ Oil Recyclers	5040 S. 51st Ave.
92-036-D	11/2/92	Unknown	29th Ave. South of Baseline
91-058-C	4/22/91	Savco Gas Station	1701 W. Baseline
90-002-B	1/10/90	Unknown	27th Ave. South of Broadway
90-039-A	4/19/90	Tanner Construction Co.	19th Ave. & Broadway
90-091-D	7/5/90	A-1 Tire Company	4825 W. Southern Ave.
90-089-A	9/10/90	Stacey White	51st Ave. & Estrella
89-233	8/8/89	Chemical Waste Mng.	2301 W. Broadway
89-283	9/14/89	Unknown	3200 W. Elliott
88-149	5/23/88	None	3727 W. Baseline
88-237	8/10/88	Country Boy Cropdusters	43rd Ave. & Baseline
88-369	12/1/88	Unknown	51st Ave. & Roeser
87-003	1/6/87	Unknown	43rd Ave. & Salt River

HAZARDOUS MATERIAL INCIDENTS
(cont.)

87-041	2/12/87	Unknown	43rd Ave. & Salt River
87-112 & 113	5/18/87	Unknown	43rd Ave. & Salt River
87-127	6/3/87	Chemical Waste Mng.	2301 W. Broadway
87-242	12/2/87	Unknown	43rd Ave. & Salt River
86-030	3/21/86	Unknown	9641 S. 51st Ave.
86-083	7/7/86	Chemical Waste Mng.	2301 W. Broadway
86-115	8/19/86	Chemical Waste Mng.	2301 W. Broadway
85-102	8/27/85	Chemical Waste Mng.	2301 W. Broadway
85-134	10/30/85	Southwest Forest	2301 W. Broadway
84-019	3/20/84	Chemical Waste Mng.	2301 W. Broadway
84-034	5/18/84	Chemical Waste Mng.	2301 W. Broadway
84-086	9/25/84	Chemical Waste Mng.	2301 W. Broadway
84-106	11/15/84	Western States Petroleum	3332 W. Broadway

REGISTERED LEAKING UNDERGROUND STORAGE TANKS
from the Arizona Department of Environmental Quality LUST Log
dated 3-1-95

This list was checked for Registered Leaking Underground Storage Tanks which occurred within the boundaries of this project:

LUST ID NO.	Notification Closed Date	Location Name Location Address	Owners Name Owners Address
0001283*3357.01	2/3/94	Circle K # 670 OPEN 4422 S 19th Ave Phoenix, AZ 85041	Circle K Corporation 3003 N Central Ave 18th Floor Phoenix, AZ 85012

FAC_ID	TANK_	T_STAT	T_PRODU	T_CAPACITY	T_AGE	T_MATERIAL	P_MATERIAL	P_TYPE
0-001283	1	Temp	Gasoline	10000	12	Bare Steel	Galvanized Steel	Pressure
0-001283	2	Temp	Gasoline	10000	12	Bare Steel	Galvanized Steel	Pressure
0-001283	3	Temp	Gasoline	10000	12	Bare Steel	Galvanized Steel	Pressure

0001334*3219.01	12/3/93	Circle K # 851 OPEN 3449 W Southern Phoenix, AZ 85041	Circle K Corporation 3003 N Central Ave 18th Floor Phoenix, AZ 85012

FAC_ID	TANK_	T_STAT	T_PRODU	T_CAPACITY	T_AGE	T_MATERIAL	P_MATERIAL	P_TYPE
0-001334	1	Temp	Gasoline	10000	20	Bare Steel	Galvanized Steel	Pressure
0-001334	2	Temp	Gasoline	10000	20	Bare Steel	Galvanized Steel	Pressure
0-001334	3	Temp	Gasoline	4000	20	Bare Steel	Galvanized Steel	Pressure

0002113*2842.01	6/3/93	Cooley Wholesale Lumber Co OPEN 1930 W Broadway Phoenix, AZ 85041	Cooley Lumber 1930 W Broadway Phoenix, AZ 85041

FAC_ID	TANK_	T_STAT	T_PRODU	T_CAPACITY	T_AGE	T_MATERIAL	P_MATERIAL	P_TYPE
0-002113	1	Remv	Gasoline	8000	Unk	Bare Steel	Galvanized Steel	
0-002113	2	Remv	Diesel	10000	Unk	Bare Steel	Galvanized Steel	

0001482*2598.01	3/5/92	Former Circle K # 1790 OPEN 709 W Southern Phoenix, AZ 85041	Adnan Khemmoro 709 W Southern Ave Phoenix, AZ 85041

FAC_ID	TANK_	T_STAT	T_PRODU	T_CAPACITY	T_AGE	T_MATERIAL	P_MATERIAL	P_TYPE
0-001482	1	Temp	Gasoline	10000	8	Fiberglass	Fiberglass	Not Marked
0-001482	2	Temp	Gasoline	10000	8	Fiberglass	Fiberglass	Not Marked
0-001482	3	Temp	Gasoline	10000	8	Fiberglass	Fiberglass	Not Marked

REGISTERED LEAKING UNDERGROUND STORAGE TANKS
(cont.)

LUST ID NO.	Notification Closed Date	Location Name Location Address	Owners Name Owners Address
0005622*2811.01	5/19/93 OPEN	Western Meat Company 3201 W Southern Laveen, AZ 85339	Kathy Herseth Route 1 Box 300 Litchfield Park, AZ 85340

FAC_ID	TANK_	T_STAT	T_PRODU	T_CAPACITY	T_AGE	T_MATERIAL	P_MATERIAL	P_TYPE
0-005622	1	Remv	Diesel	8000	17	Bare Steel	Galvanized Steel	
0-005622	2	Remv	Gasoline	10000	17	Bare Steel	Galvanized Steel	Suction –
0-005622	3	Remv	Gasoline	1200	Unk	Bare Steel	Bare Steel	Not Marked

REGISTERED UNDERGROUND STORAGE TANKS
from the Arizona Department of Environmental Quality UST Log
dated 3-1-95

This list was checked for registered underground storage tanks which occurred within the boundaries of this project:

Owner Name & Address: AGRICULTURAL ENTERPRISES INC 110 N 115TH AVE
TOLLESON AZ 85353 MARICOPA
Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone
0-000078 MARICOPA AGRICULTURAL ENTERPRISES INC 43RD & AND DOBBINS ROAD LAVEEN 85339 PATRICK J. DUNCAN (602) 237-4800

Tank ID--- Status Product---------- Capacity-- Age Mat'l of Construct. Piping Material Piping Type RD (Tanks) ----- RD (Piping)
1 Remv Gasoline 2,000 24 Bare Steel Galvanized Steel
2 Remv Gasoline 2,000 24 Bare Steel Galvanized Steel
3 Remv UNKNOWN 6,000 19 Bare Steel Galvanized Steel
4 Remv UNKNOWN 6,000 19 Bare Steel Galvanized Steel

Owner Name & Address: ARNOLD MACHINERY COMPANY PO BOX 21005
PHOENIX AZ 85036 MARICOPA
Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone
0-006232 MARICOPA ARNOLD MACHINERY COMPANY 6024 W SOUTHERN LAVEEN 85339 WESTERN MACHINERY COMPANY (602) 237-3755

Tank ID--- Status Product---------- Capacity-- Age Mat'l of Construct. Piping Material Piping Type RD (Tanks) ----- RD (Piping)
1 Curr Diesel 2,000 7 Cath. Steel Fiberglass

Owner Name & Address: CORESLAB STRUCTURES INC PO BOX 18150
PHOENIX AZ 85005 MARICOPA
Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone
0-004737 MARICOPA CORESLAB STRUCTURES INC 5026 S 43RD AVE LAVEEN 85339 RON HARMON (602) 237-3875

Tank ID--- Status Product---------- Capacity-- Age Mat'l of Construct. Piping Material Piping Type RD (Tanks) ----- RD (Piping)
1 Remv Diesel 10,000 13 Fiberglass Galvanized Steel Suction -- Valve Manual Gauging Leak Detector
2 Remv Gasoline 10,000 13 Fiberglass Galvanized Steel Suction -- Valve Manual Gauging Leak Detector
3 Remv Used Oil 550 9 Bare Steel Galvanized Steel Gravity Fed Tightness Testing

REGISTERED UNDERGROUND STORAGE TANKS
(cont.)

Owner Name & Address: COOLEY LUMBER 1930 W BROADWAY PHOENIX AZ 85041 MARICOPA

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone

0-002113 MARICOPA COOLEY WHOLESALE LUMBER CO 1930 W BROADWAY PHOENIX 85041 AL JOHNSON (602) 243-4288

Tank ID---	Status	Product----------	Capacity--	Age	Mat'l of Construct.	Piping Material	Piping Type	RD (Tanks)	----- RD (Piping)
1	Remv	Gasoline	8,000	Unk	Bare Steel	Galvanized Steel			
2	Remv	Diesel	12,000	Unk	Bare Steel	Galvanized Steel	Not Marked		

Owner Name & Address: ADNAN KHEMMORO 709 W SOUTHERN AVE PHOENIX AZ 85041 MARICOPA

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone

0-001482 MARICOPA FORMER CIRCLE K # 1790 709 W SOUTHERN PHOENIX 85041 ADNAN KHEMMORO (602) 268-4543

Tank ID---	Status	Product----------	Capacity--	Age	Mat'l of Construct.	Piping Material	Piping Type	RD (Tanks)	----- RD (Piping)
1	Curr	Gasoline	10,000	9	Fiberglass	Fiberglass	Pressure	Auto. Gauging	Leak Detector
2	Curr	Gasoline	10,000	9	Fiberglass	Fiberglass	Pressure	Auto. Gauging	Leak Detector
3	Curr	Gasoline	10,000	9	Fiberglass	Fiberglass	Pressure	Auto. Gauging	Leak Detector

Owner Name & Address: ROBERT PENNINGTON 3010 W BROADWAY PHOENIX AZ 85041 MARICOPA

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone

0-003724 MARICOPA FORMER PHILLIPS 66 COMPANY #015204 702 W SOUTHERN PHOENIX 85041 RONALD SMOLLER (918) 661-6600

Tank ID---	Status	Product----------	Capacity--	Age	Mat'l of Construct.	Piping Material	Piping Type	RD (Tanks)	----- RD (Piping)
1	Remv	Gasoline	6,000	27	Bare Steel	Bare Steel			
2	Remv	Used Oil	550	27	Bare Steel	Bare Steel			
3	Remv	Gasoline	10,000	19	Bare Steel	Bare Steel			
4	Remv	Gasoline	6,000	27	Bare Steel	Bare Steel			

REGISTERED UNDERGROUND STORAGE TANKS
(cont.)

Owner Name & Address: WESTERN STATES PETROLEUM 450 S 15TH AVE
PHOENIX AZ 85007 MARICOPA
Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone
0-005624 MARICOPA FUELCO #112 2401 W BROADWAY
PHOENIX 85041 JIM BERG (602) 252-4011

Tank ID--- Status Product---------- Capacity-- Age Mat'l of Construct. Piping Material Piping Type RD (Tanks) ----- RD (Piping)

1	Remv	Gasoline	4,000	16	Bare Steel	Galvanized Steel	
2	Remv	Gasoline	6,000	16	Bare Steel	Galvanized Steel	
3	Remv	Gasoline	6,000	16	Bare Steel	Galvanized Steel	
4	Remv	Diesel	4,000	16	Bare Steel	Galvanized Steel	
5	Remv	Used Oil	Unknown	Unk	Unknown	Unknown	Not Marked

Owner Name & Address: KATHY HERSETH ROUTE 1 BOX 300
LITCHFIELD PARK AZ 85340 MARICOPA
Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone
0-007626 MARICOPA HERSETH MEAT PACKING 3201 W SOUTHERN
PHOENIX 85041 GEORGE DOMASCO (602) 977-9190

Tank ID--- Status Product---------- Capacity-- Age Mat'l of Construct. Piping Material Piping Type RD (Tanks) ----- RD (Piping)

1	Remv	Used Oil	1,000	24	Bare Steel	Bare Steel	Gravity Fed

Owner Name & Address: HIT-N-RUN FOOD STORES OF AZ 1869 W SOUTHERN
PHOENIX AZ 85041 MARICOPA
Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone
0-006735 MARICOPA HIT-N-RUN FOOD STORES OF AZ 1869 W SOUTHERN
PHOENIX 85041 DAN ROTH (602) 370-1921

Tank ID--- Status Product---------- Capacity-- Age Mat'l of Construct. Piping Material Piping Type RD (Tanks) ----- RD (Piping)

1	Curr	Gasoline	10,000	5	Fiberglass	Fiberglass	Manual Gauging Sec. Containmen
2	Curr	Gasoline	10,000	5	Fiberglass	Fiberglass	Manual Gauging Sec. Containmen
3	Curr	Gasoline	10,000	5	Fiberglass	Fiberglass	Manual Gauging Sec. Containmen

REGISTERED UNDERGROUND STORAGE TANKS
(cont.)

Owner Name & Address: HALEY'S MASONRY INC RT 1 BOX 308F LAVEEN AZ 85339 MARICOPA

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone

0-002419 MARICOPA HALEY'S MASONRY INC 8402 S 43RD AVE LAVEEN 85339 HALEY'S MASONRY INC (602) 237-4880

Tank ID---	Status	Product----------	Capacity--	Age	Mat'l of Construct.	Piping Material	Piping Type	RD (Tanks)	-----	RD (Piping)
1	Remv	Gasoline	1,000	24	Bare Steel	Galvanized Steel				
2	Remv	Gasoline	10,000	21	Bare Steel	Galvanized Steel				

Owner Name & Address: GEORGE KNAPPLE 3101 W DOBBINS ROAD LAVEEN AZ 85339 MARICOPA

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone

0-002884 MARICOPA KNAPPLE FARMS 3101 W DOBBINS RT BOX 394 LAVEEN 85339 GEORGE KNAPPLE (602) 237-3616

Tank ID---	Status	Product----------	Capacity--	Age	Mat'l of Construct.	Piping Material	Piping Type	RD (Tanks)	-----	RD (Piping)
1	Remv	Gasoline	8,000	Unk	Bare Steel	Galvanized Steel				
2	Remv	Diesel	6,000	Unk	Bare Steel	Galvanized Steel				

Owner Name & Address: US WEST COMMUNICATIONS 3640 E INDIAN SCHOOL RD #200 PHOENIX AZ 85018 MARICOPA

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone

0-004104 MARICOPA LAVEEN CO 163169 9023 S 51ST AVE LAVEEN 85339 JOHN FERGUSON (602) 235-1484

Tank ID---	Status	Product----------	Capacity--	Age	Mat'l of Construct.	Piping Material	Piping Type	RD (Tanks)	-----	RD (Piping)
1	Remv	Diesel	550	19	Bare Steel	Cath. Protection				

REGISTERED UNDERGROUND STORAGE TANKS
(cont.)

Owner Name & Address: CHICKASHA COTTON OIL CO PO BOX 959 CASA GRANDE AZ 85222 PINAL

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone

0-006709 MARICOPA SOUTH MOUNTAIN GIN 6411 S 51ST AVE LAVEEN 85339 JOHN VISIC (602) 836-7406

Tank ID--- Status Product---------- Capacity-- Age Mat'l of Construct. Piping Material Piping Type RD (Tanks) ----- RD (Piping)

1 Remv Gasoline 500 Unk Bare Steel Unknown

Owner Name & Address: JOE HITCHENS 7145 S 51ST AVE LAVEEN AZ 85339 MARICOPA

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone

0-006128 MARICOPA TUMBLEWEED SERVICE 7145 S 51ST AVE LAVEEN 85339 JOE HITCHENS (602) 237-2432

Tank ID--- Status Product---------- Capacity-- Age Mat'l of Construct. Piping Material Piping Type RD (Tanks) ----- RD (Piping)

1 Remv Kerosene 4,000 10 Bare Steel Galvanized Steel Suction -- Valve Manual Gauging Leak Detector

2 Remv Kerosene 6,000 10 Bare Steel Fiberglass Suction -- Valve Manual Gauging Leak Detector

3 Remv Diesel 10,000 10 Bare Steel Galvanized Steel Suction -- Valve Manual Gauging Leak Detector

Owner Name & Address: KATHY HERSETH ROUTE 1 BOX 300 LITCHFIELD PARK AZ 85340 MARICOPA

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone

0-005622 MARICOPA WESTERN MEAT COMPANY 3201 W SOUTHERN LAVEEN 85339 JOHN MARTINEAU (602) 943-0051

Tank ID--- Status Product---------- Capacity-- Age Mat'l of Construct. Piping Material Piping Type RD (Tanks) ----- RD (Piping)

1 Remv Diesel 8,000 18 Bare Steel Galvanized Steel

2 Remv Gasoline 10,000 18 Bare Steel Galvanized Steel Suction -- Valve

3 Remv Gasoline 1,200 Unk Bare Steel Bare Steel Not Marked

REGISTERED UNDERGROUND STORAGE TANKS
(cont.)

Owner Name & Address: CIRCLE K CORPORATION 3003 N CENTRAL AVE 18TH FLOOR
PHOENIX AZ 85012 MARICOPA
Facility ID Location County----- Location Name---------- Street Address---------- Location
City------- Zip-- Manager---------- Mgr. Telephone
0-001497 MARICOPA CIRCLE K # 1844 3508 W BASELINE ROAD
PHOENIX 85339 MYRON SMITH (602) 437-0600

Tank ID--- Status Product---------- Capacity-- Age Mat'l of Construct. Piping Material Piping
Type RD (Tanks) ----- RD (Piping)
1 Curr Gasoline 10,000 9 Fiberglass Fiberglass Pressure
Tightness Testing Leak Detector
2 Curr Gasoline 10,000 9 Fiberglass Fiberglass Pressure
Tightness Testing Leak Detector
3 Curr Gasoline 10,000 9 Fiberglass Fiberglass Pressure
Tightness Testing Leak Detector

Owner Name & Address: BEALS CONTRACTING CO RT 1 BOX 383 LAVEEN
AZ 85339 MARICOPA
Facility ID Location County----- Location Name---------- Street Address---------- Location
City------- Zip-- Manager---------- Mgr. Telephone
0-000654 MARICOPA BEALS CONTRACTING CO 8831 S 27TH AVE
PHOENIX 85009 JOHN BEALS (602) 276-4491

Tank ID--- Status Product---------- Capacity-- Age Mat'l of Construct. Piping Material Piping
Type RD (Tanks) ----- RD (Piping)
1 Temp Gasoline 3,000 18 Bare Steel Galvanized Steel Suction -- No
Valve Tightness Testing
2 Temp Diesel 3,000 18 Bare Steel Galvanized Steel Suction -- No
Valve

Owner Name & Address: WAYNE WEILER 2323 W S MOUNTAIN AVE
PHOENIX AZ 85041 MARICOPA
Facility ID Location County----- Location Name---------- Street Address---------- Location
City------- Zip-- Manager---------- Mgr. Telephone
0-005593 MARICOPA WAYNE WEILER 2323 W S MOUNTAIN AVE
PHOENIX 85041 WAYNE WEILER (602) 268-5466

Tank ID--- Status Product---------- Capacity-- Age Mat'l of Construct. Piping Material Piping
Type RD (Tanks) ----- RD (Piping)
1 Remv Diesel 4,000 Unk Bare Steel Galvanized Steel
2 Remv Gasoline 2,000 Unk Bare Steel Galvanized Steel

REGISTERED UNDERGROUND STORAGE TANKS
(cont.)

Owner Name & Address: CIRCLE K CORPORATION 3003 N CENTRAL AVE 18TH FLOOR PHOENIX AZ 85012 MARICOPA

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone

0-001345 MARICOPA CIRCLE K # 944 722 W SOUTHERN PHOENIX 85041 HARVEY HESS (602) 437-0600

Tank ID---	Status	Product----------	Capacity--	Age	Mat'l of Construct.	Piping Material	Piping Type	RD (Tanks)	-----	RD (Piping)
1	Remv	Gasoline	10,000	13	Bare Steel	Unknown				
2	Remv	Gasoline	10,000	13	Bare Steel	Unknown				
3	Remv	Gasoline	10,000	13	Bare Steel	Unknown				

Owner Name & Address: CIRCLE K CORPORATION 3003 N CENTRAL AVE 18TH FLOOR PHOENIX AZ 85012 MARICOPA

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone

0-001526 MARICOPA CIRCLE K # 1739 7440 S 7TH AVE PHOENIX 85041 HARVEY HESS (602) 437-0600

Tank ID---	Status	Product----------	Capacity--	Age	Mat'l of Construct.	Piping Material	Piping Type	RD (Tanks)	-----	RD (Piping)
1	Curr	Gasoline	10,000	8	Fiberglass	Fiberglass				
2	Curr	Gasoline	10,000	8	Fiberglass	Fiberglass				
3	Curr	Gasoline	10,000	8	Fiberglass	Fiberglass				

Owner Name & Address: TANNER COMPANIES PO BOX 52140 PHOENIX AZ 85072-2140 MARICOPA

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone

0-006802 MARICOPA CONSTRUCTION YARD 2801 W BROADWAY PHOENIX 85041 D G CHAVEZ (602) 220-5000

Tank ID---	Status	Product----------	Capacity--	Age	Mat'l of Construct.	Piping Material	Piping Type	RD (Tanks)	-----	RD (Piping)
1	Remv	Diesel	10,000	10	Fiberglass	Unknown	Not Marked			
2	Remv	Diesel	10,000	10	Fiberglass	Unknown	Not Marked			

REGISTERED UNDERGROUND STORAGE TANKS
(cont.)

Owner Name & Address: M & M AUTO STORAGE POOL INC 2299 W BROADWAY
PHOENIX AZ 85041 MARICOPA

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone
0-003013 MARICOPA M & M AUTO STORAGE POOL INC 2299 W BROADWAY
PHOENIX 85041 ROBERT D MARTIN (602) 243-2731

Tank ID---	Status	Product----------	Capacity--	Age	Mat'l of Construct.	Piping Material	Piping Type	RD (Tanks)	-----	RD (Piping)
1	Remv	Gasoline	10,000	18	Bare Steel	Bare Steel				

Owner Name & Address: ROTMAN PROPERTIES 3250 W BROADWAY ROAD
PHOENIX AZ 85041 MARICOPA
Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone
0-008079 MARICOPA ROTMAN PROPERTIES 3250 W BROADWAY ROAD
PHOENIX 85041 JOE ROTMAN (602) 243-3933

Tank ID---	Status	Product----------	Capacity--	Age	Mat'l of Construct.	Piping Material	Piping Type	RD (Tanks)	-----	RD (Piping)
1	Remv	Gasoline	1,000	Unk	Bare Steel	Bare Steel	Pressure			
2	Remv	Gasoline	1,000	Unk	Bare Steel	Bare Steel	Pressure			

Owner Name & Address: ROYDEN CONSTRUCTION CO 3423 S 51ST AVE
PHOENIX AZ 85009 MARICOPA
Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone
0-001618 MARICOPA ROYDEN CONSTRUCTION CO 2844 W BROADWAY
PHOENIX 85041 TOM ROYDEN (602) 484-0028

Tank ID---	Status	Product----------	Capacity--	Age	Mat'l of Construct.	Piping Material	Piping Type	RD (Tanks)	-----	RD (Piping)
1	Remv	Gasoline	500	27	Bare Steel	Unknown				
2	Remv	Gasoline	500	27	Bare Steel	Unknown				
3	Remv	Gasoline	500	27	Bare Steel	Unknown				
4	Remv	Gasoline	500	27	Bare Steel	Unknown				

REGISTERED UNDERGROUND STORAGE TANKS
(cont.)

Owner Name & Address: SMITH PRE-CAST 2410 W BROADWAY PHOENIX AZ 85041 MARICOPA

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone

0-008548 MARICOPA SMITH PRE-CAST 2410 W BROADWAY PHOENIX 85041 GENE R GILE

Tank ID--- Status Product---------- Capacity-- Age Mat'l of Construct. Piping Material Piping Type RD (Tanks) ----- RD (Piping)

1 Curr Diesel 10,000 23 Bare Steel Galvanized Steel Suction -- No Valve Tightness Testing Line Tightness

2 Curr Gasoline 8,000 25 Bare Steel Galvanized Steel Suction -- No Valve Tightness Testing Line Tightness

Owner Name & Address: TATEL INC 5250 S 43RD AVE PHOENIX AZ 85041 MARICOPA

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone

0-006526 MARICOPA TATEL INC 5250 S 43RD AVE PHOENIX 85041 CLYDE MCDONALD (602) 237-2170

Tank ID--- Status Product---------- Capacity-- Age Mat'l of Construct. Piping Material Piping Type RD (Tanks) ----- RD (Piping)

1 Curr Gasoline 3,000 6 Fiberglass Galvanized Steel Manual Gauging Leak Detector

2 Curr Diesel 15,000 6 Fiberglass Galvanized Steel Manual Gauging Leak Detector

Owner Name & Address: VISTA CONSTRUCTION PO BOX 8160 PHOENIX AZ 85066 MARICOPA

Facility ID Location County----- Location Name---------- Street Address---------- Location City------- Zip-- Manager---------- Mgr. Telephone

0-005548 MARICOPA VISTA CONSTRUCTION 2836 W BROADWAY PHOENIX 85041 GILBERT VALENCIA (602) 877-3134

Tank ID--- Status Product---------- Capacity-- Age Mat'l of Construct. Piping Material Piping Type RD (Tanks) ----- RD (Piping)

1 Curr Gasoline 1,000 Unk Bare Steel Galvanized Steel

2 Curr Gasoline 1,000 Unk Bare Steel Galvanized Steel

ADEQ DRY WELL REGISTRATION DATA BASE
dated 1-4-95

This list was checked for dry wells which occurred within the boundaries of this project:

REG#	FACILITY NAME	ADDRESS
9912 & 9913	A.G. Products	2525 W. Broadway Road
8227 & 8228	C.O.P. Foothills Village Apts.	6300 S. 7th Ave.
8449	C.O.P. Streets	Southern Ave. West of 7th Ave.
7281 & 7282	Fire Station #39	2276 W. Southern Ave.
1761 to 1720	Laveen Elementary School Dist. #59	9401 S. 51st Ave.
8056 to 8059	Laveen School Campus	9401 S. 51st Ave.

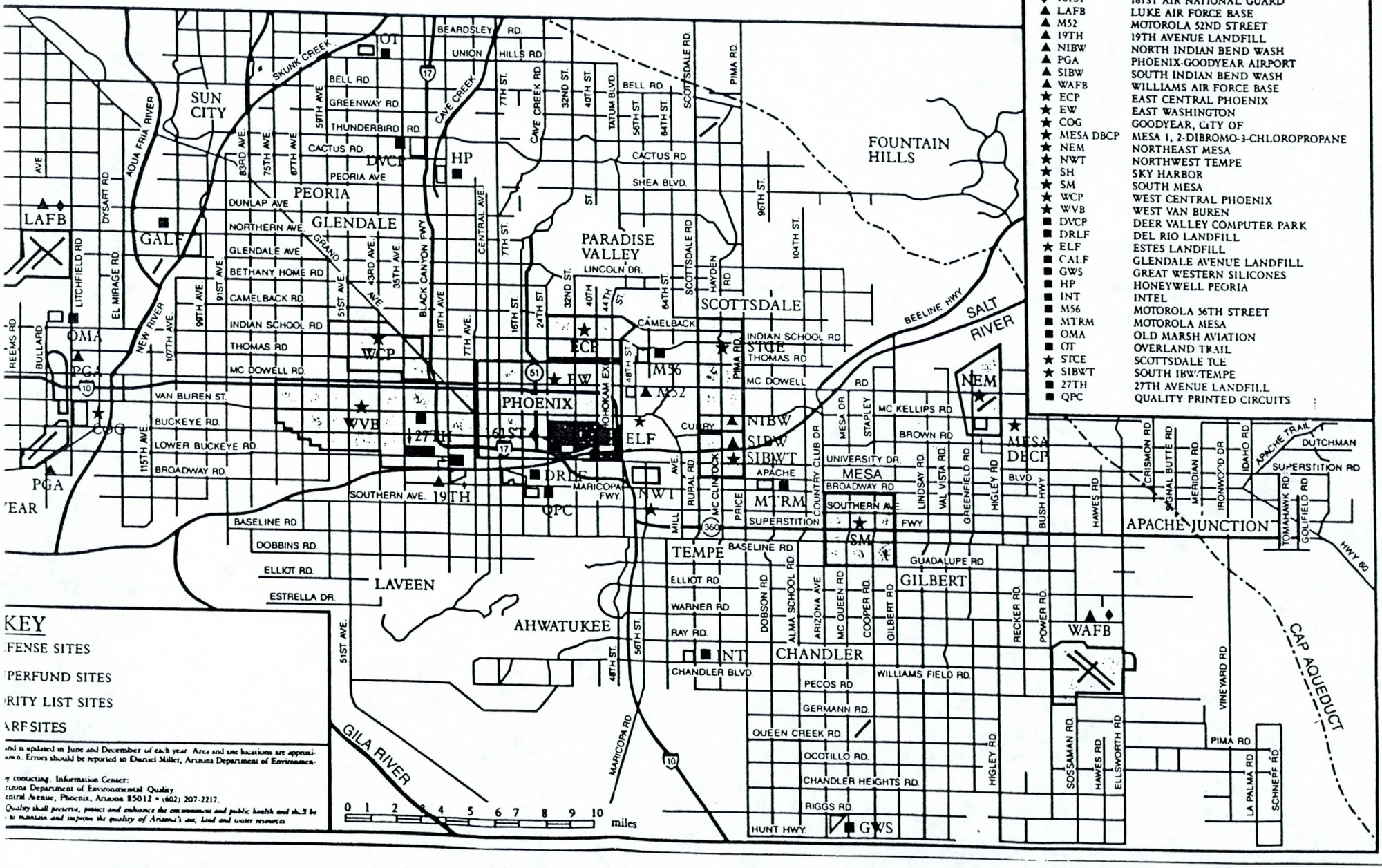
ARIZONA HOME INDOOR RADON
SURVEY RESULTS BY ZIP CODE
Revised 6-16-93

Radon Levels for Zip Code 85041 were high at 3.1 pCi/l with 7 tests (7 at <4.0 and 0 at 4.0+).

Radon Levels for Zip Code 85339 were not available.

AQUIFER PROTECTION PERMIT PROGRAM
EXISTING FACILITY
dated January 1, 1995

This list was checked for properties which occurred within the boundaries of this project:

No properties were found included in the Aquifer Protection Permit Program.

UND AND WQARF SITES / PHOENIX AREA / FY 1994